TENW
Transportation Engineering NorthWest

MEMORANDUM

DATE: December 14, 2016

TO: Doug Schlepp
City of Issaquah

FROM: Jeff Schramm
TENW

SUBJECT: Mallard Bay Residential (PRE16-00016)
Traffic Impact Analysis
TENW Project No. 5339

The purpose of this memorandum is to summarize the Traffic Impact Analysis (TIA) conducted for the proposed Mallard Bay residential development located on SE 43rd Way. The analysis is presented consistent with the City's adopted Guidelines for preparation of a TIA, and supplements the City's recently adopted Transportation Concurrency and multi-modal transportation impact fees.

City TIA Guidelines

A TIA is required by the City to evaluate the impacts of proposed land use developments on the existing transportation network, and to identify consistent and appropriate mitigation measures. This TIA was prepared to be consistent with the City's TIA Guidelines adopted April 8, 2015.

A TIA is required for developments generating 30 or more peak hour trips to the transportation system. A concurrency application for the Mallard Bay Residential project was previously provided to the City.

The City recently conducted a City-wide transportation concurrency assessment for system-wide concurrency intersections that accounted for future planned growth. The mitigation for the planned growth is payment of a transportation impact fee that is used by the City to administer transportation improvements to accommodate the planned growth. As a result, a system-wide intersection capacity analysis is not required for individual developments as long as the type, amount, and location of a proposed development is consistent with the City's future planned growth. The proposed Gateway Senior Housing project is consistent with the City's future planned growth in the Central Issaquah Plan.

Further, the City-wide concurrency assessment does not negate the need for a localized analysis of traffic impacts in the immediate vicinity of a development project's site access, and/or other non-motorized, safety, geometric, construction, or non-motorized impacts. As such, it is the intent of this TIA document to provide a localized analysis of traffic impacts of the proposed Mallard Bay Residential project on SE 43rd Way.

The remainder of this TIA document provides the localized traffic impact analysis for the proposed Mallard Bay Residential development on SE 43rd Way. Measures used to evaluate traffic impacts include trip generation; intersection LOS, delays, and queues; safety, channelization and frontage, and site access control. Consideration of these elements addresses traffic scoping comments provided by the City in emails dated November 29, 2016.

Project Description

The proposed Mallard Bay Residential development site is located on the east side of SE 43rd Way at approximately 213th Place SE as shown in **Figure 1**. The preliminary site plan for the Mallard Bay Residential development includes 34 single-family homes on a site that is currently vacant and zoned as Multi-family High (29 dwelling units per acre). Full project buildout is anticipated to by 2018.

Vehicular access to the site would be provided via one new driveway on SE 43rd Way which would align with the existing driveway on the west side of SE 43rd Way at 213th Place SE. It should be noted that the location of the proposed access onto SE 43rd Way does not meet the City's minimum spacing required per City of Issaquah Street Standards for an arterial. City Street Standards may consider turn restrictions for this condition, and as such the analysis and consideration of turn restrictions is addressed in this report.

A preliminary project site plan is provided in **Figure 2**.

Trip Generation

The trip generation estimate for the proposed Mallard Bay Residential development was based on the methodology included in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9th edition for Land Use Code (LUC) 210 (Single Family Housing). The resulting weekday daily, AM, and PM peak hour trip generation associated with the proposed project is summarized in **Table 1**. The detailed trip generation is included in **Attachment A**.

Table 1
Trip Generation Summary - Mallard Bay Residential

	New Vehicle Trips Generated		
Time Period	In	Out	Total
Weekday Daily	194	195	389
Weekday AM Peak Hour	8	26	34
Weekday PM Peak Hour	25	15	40

As shown in **Table 1**, the proposed Mallard Bay residential project is estimated to generate 389 new weekday daily trips, with 34 new trips occurring during the weekday AM peak hour (8 in, 26 out) and 40 during the weekday PM peak (25 in, 15 out).

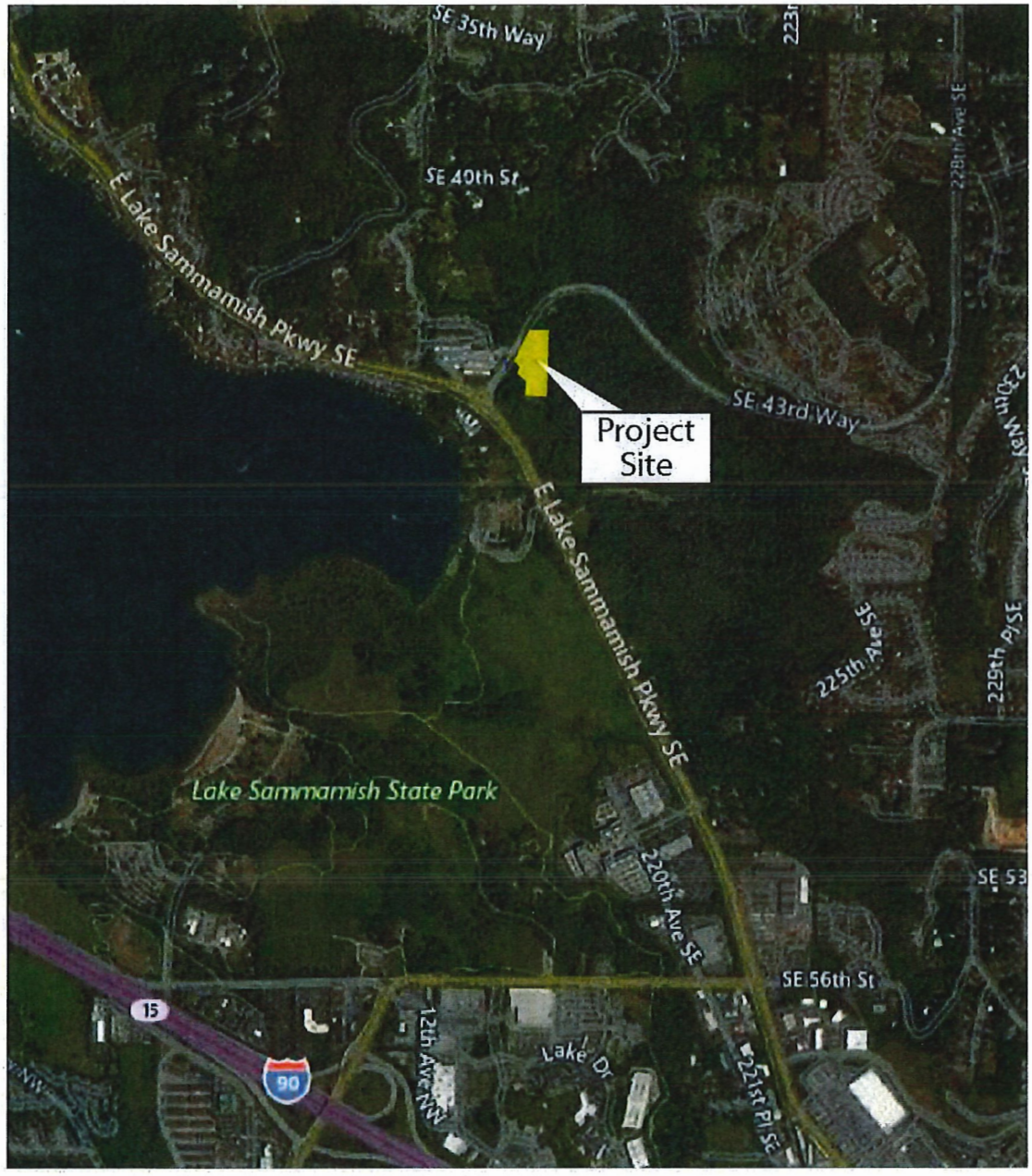
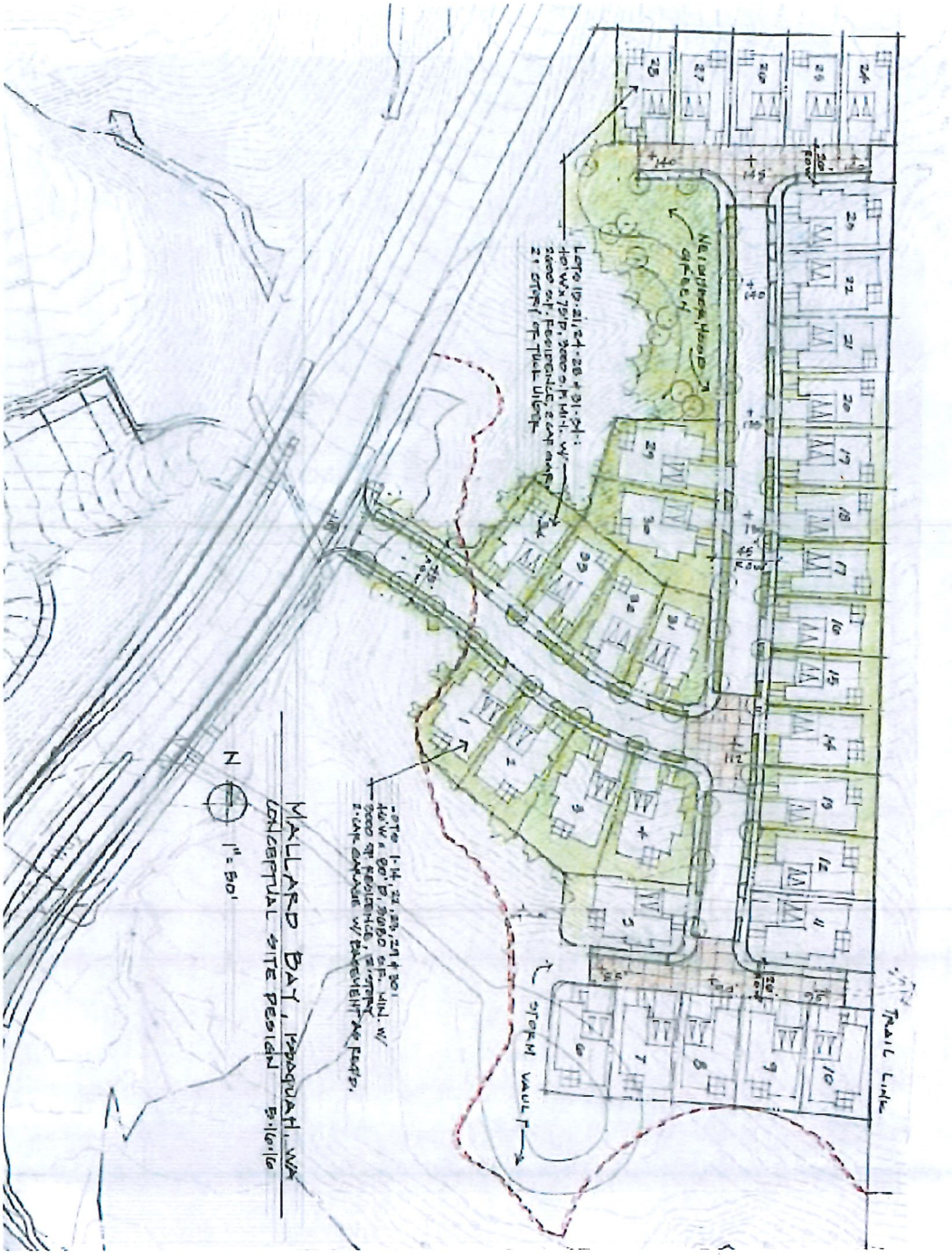


Figure 1: Project Site Vicinity

N
NOT TO SCALE



N
NOT TO SCALE

Figure 2: Preliminary Site Plan

Future Traffic Volumes

The traffic volumes used in this TIA were based on AM and PM peak hour turning movement counts conducted in November and December 2016 at the intersection of E Lake Sammamish Pkwy SE/SE 43rd Way and at the proposed site access intersection on SE 43rd Way.

To estimate future peak hour traffic volumes without the project for the anticipated year of project buildout (2018), a conservative 4 percent annual growth rate was applied to the existing traffic volumes. A summary of the existing and future without-project traffic volumes during the weekday AM and PM peak hours is illustrated in **Figure 3**.

The distribution of the project trips by vehicles generated by the proposed Mallard Bay Residential development during the AM and PM peak hours was based on existing travel patterns in the area, and turning movement counts collected at the E Lake Sammamish Parkway/SE 43rd Way intersection. The new peak hour project-generated trips are illustrated in **Figure 3** and were generally distributed to the vicinity street system as follows:

- 10 percent to/from the east on SE 43rd Way
- 10 percent to/from the north on East Lake Sammamish Pkwy
- 80 percent to/from the south on East Lake Sammamish Pkwy

Estimating trip distribution from existing counts in the area is a legitimate method since traffic on SE 43rd Way is largely residential. While use of the City's traffic model may provide slightly different distribution patterns, we don't expect those to be significantly different than the distribution patterns based on the existing traffic counts at E Lake Sammamish Pkwy/SE 43rd Way.

Project trips generated by the Mallard Bay Residential during the weekday AM and PM peak hours were added to the 2018 No Action (Without-Project) traffic volumes, resulting in 2018 daily and peak hour traffic volumes when the project is expected to be open. A summary of the peak hour traffic volumes used for the LOS analyses are provided in **Figure 3**. Detailed traffic count information is provided in **Attachment B.**

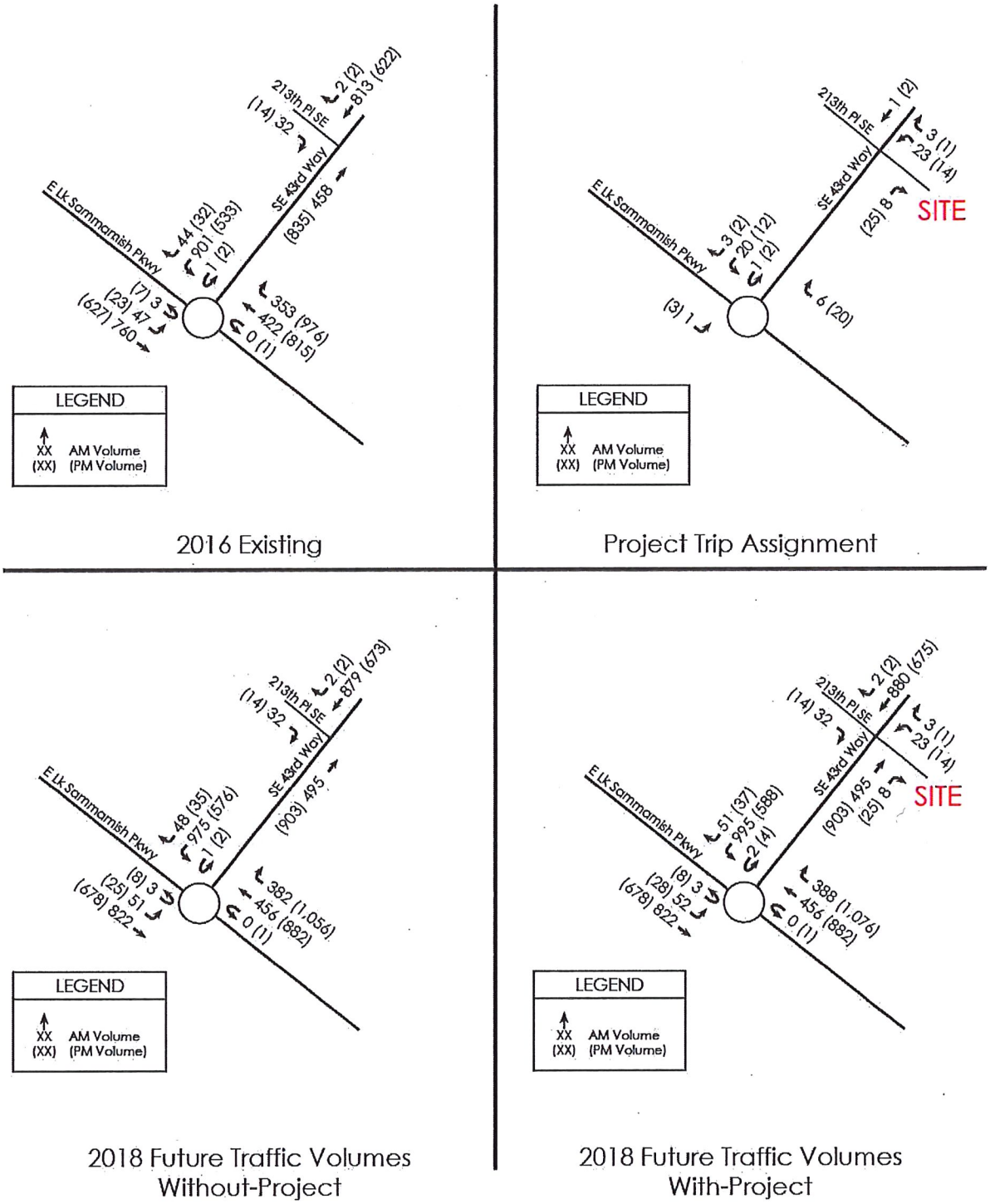


Figure 3: AM and PM Peak Hour Traffic Volumes

Intersection Level of Service

The City's adopted standard is LOS D consistent with the latest edition of the *Highway Capacity Manual*. According to the City's TIA Guidelines, a development that exceeds the maximum allowable delay at a driveway or local roadway not included in the City's transportation concurrency analysis is considered as having a probably significant adverse impact and will be required to mitigate that impact.

Weekday AM and PM peak hour LOS, delays, and queues were evaluated at the intersection E Lake Sammamish Pkwy/SE 43rd Way. LOS and queue calculations were based on methodology and procedures outlined in the 2010 update of the *Highway Capacity Manual*, Transportation Research Board (HCM 2010) using *SIDRA* traffic analysis software for RAB and Synchro 8.0 at the site driveway. The results of the LOS analysis are summarized in the **Table 2** below. Detailed LOS results are provided in **Attachment C**.

Table 2
LOS and Queue Analysis Results at E Lake Samm Pkwy/SE 43rd Way

	2016 Existing			2018 No Action			2018 With-Project		
Location (movement)	LOS	Delay	95th % Queue (ft)	LOS	Delay	95th % Queue (ft)	LOS	Delay	95th % Queue (ft)
AM PEAK HOUR									
ELSP / SE 43rd Way:	C	15.9	--	C	21.1	--	C	22.2	--
EB LT-Thru (E Lk Samm Pkwy)	C	23.8	100	D	33.3	125	E	35.1	125
EB Thru (E Lk Samm Pkwy)	C	22.9	100	D	32.0	125	D	33.8	125
EB Bypass (E Lk Samm Pkwy)	B	13.5	25	C	15.4	0	C	15.6	25
WB Thru-RT (E Lk Samm Pkwy)	A	8.2	75	A	8.8	75	A	8.8	75
WB RT (E Lk Samm Pkwy)	A	0	0	A	0	0	A	0	0
SB LT (SE 43rd)	C	19.5	150	D	25.6	175	D	27.1	200
SB LT-RT (SE 43rd)	C	19.5	150	D	25.6	175	D	27.1	200
PM PEAK HOUR									
ELSP / SE 43rd Way:	B	12.7	--	C	16.7	--	C	17.3	--
EB LT-Thru (E Lk Samm Pkwy)	B	11.3	50	B	12.9	50	B	13.2	50
EB Thru (E Lk Samm Pkwy)	B	11.1	50	B	12.6	50	B	12.9	50
EB Bypass (E Lk Samm Pkwy)	A	9.1	25	A	9.9	25	B	10.0	25
WB Thru-RT (E Lk Samm Pkwy)	C	20.0	300	D	26.3	450	D	26.9	475
WB RT (E Lk Samm Pkwy)	A	0.2	0	A	0.2	0	A	0.2	0
SB LT (SE 43rd)	D	25.5	100	E	36.0	125	E	38.2	125
SB LT-RT (SE 43rd)	D	25.5	100	E	36.0	125	E	38.2	125

1. LOS = Level of Service.
2. Delay refers to average control delay in seconds per vehicle
3. 95th percentile queues represent queues (in feet) that are only expected to be exceeded 5 percent of the time.

As shown in **Table 2**, the intersection of E Lake Sammamish Pkwy SE/SE 43rd Way is anticipated to operate at LOS C or better during the AM and PM peak hours in 2018 without or with the proposed Mallard Bay Residential project.

Site Access Considerations

Vehicle access to/from the site is proposed at a single access driveway on SE 43rd Way aligned with an existing driveway on the north side of the street and located approximately 550 feet east of the existing E Lake Sammamish Pkwy SE/SE 43rd Way intersection. The proposed location is the only option for vehicle access to/from the site; due to environmental and wetland constraints, no vehicle access is feasible onto E Lake Sammamish Pkwy SE.

As part of the site access considerations, both inbound and outbound left-turn channelization were evaluated at the proposed site access location on SE 43rd Way. Consideration was given to sight distance, travel speeds along SE 43rd Way, traffic safety, traffic volumes, peak hour LOS entering and exiting the site, and frontage requirements. Each of these considerations are described in the following sections.

Sight Distance Evaluation

Entering sight distance (ESD) and Stopping Sight Distance (SSD) were evaluated at the location of the proposed Mallard Bay Residential site access onto SE 43rd Way. The proposed site access driveway would align with the existing driveway on the north side of SE 43rd Way at 213th Place SE. The entering sight distance and stopping sight distance were evaluated based on requirements in the *City of Issaquah Adopted Street Standards*, Standard Detail T-01 based on a design speed of 45 mph (40 mph posted speed + 5mph).

Based on a 45 mph design speed on SE 43rd Way, in the eastbound direction the recommended design value for SSD is 360 feet. Based on the sight distance exhibit included as **Attachment D**, the stopping sight distance on the eastbound approach to the proposed driveway location is greater than 360 feet. Therefore, the stopping sight distance for the proposed driveway location on SE 43rd Way meets (exceeds) the applicable standards.

The City roadway standards for a minor arterial with a design speed of 45 mph requires 500 feet ESD for left-turns from a driveway and 430 feet ESD for right-turns. **Attachment D** illustrates the entering sight distance at the location of the proposed access onto SE 43rd Way for the Mallard Bay Residential development. As shown, minimum entering sight distance standards would be met for a vehicle turning left or right from the site access location onto SE 43rd Way.

Speed Study

A 2-day speed study was conducted on Wednesday and Thursday, December 7 and 8, 2016 on SE 43rd Way just west of 213th Place SE (the proposed Mallard Bay Residential driveway). The results of the speed study showed that the 2-day average 85th percentile speed was 43 mph in the eastbound direction and 42 mph in the westbound direction. The posted speed limit on SE 43rd Way Speed is 40 mph. Speed Limit postings are intended to meet 85th percentile speeds. The results of the speed study confirm that vehicles traveling on SE 43rd Way are near the speed limit. The results of the speed study also confirm the use of a 45 mph design speed as appropriate for design and access consideration. The detailed speed study data is included as **Attachment E**.

Collision History

To evaluate safety, historical collisions at the intersection of E Lake Sammamish Pkwy SE/SE 43rd Way and along SE 43rd Way along the project frontage were documented for the three-year period January 1, 2013 to December 31, 2015. Collision data was provided by WSDOT for this most recent period. Summaries of the total, yearly average, and collisions per million entering vehicles (MEV) are provided in **Table 3** below. The collision data is provided in **Attachment F**.

Table 3
Collision Data Summary, January 1, 2013 to December 31, 2015

Intersection	2013	2014	2015	3-Year Total Collisions	Average Annual Collisions	Collisions per MEV [1]
E Lk Samm Pkwy / SE 43rd Way	11	12	12	34	11.33	1.03
SE 43rd Way / 213th Place SE	0	0	2	2	0.67	0.12

Source: WSDOT Collision Records.
[1] MEV = Million Entering Vehicles.

As shown in **Table 3**, there was an average of 12 collisions per year at the intersection of E Lake Sammamish Pkwy SE/SE 43rd Way with a collision rate of about 1.09 collisions per million entering vehicles (MEV). At SE 43rd Way/213th Pl SE there was an average of less than 1 collision per year with a collision rate of about 0.12 collisions per million entering vehicles.

According to the City's TIA Guidelines, the addition of 10 or more peak hour trips to a High Accident Location (HAL) will be considered a probably significant adverse impact. When a development proposal impacts a HAL, the City may require reasonable mitigation even if the LOS thresholds are not exceeded. The City may also consider other safety threshold requirements. At the time of this TIA, it was not known whether the City has designated the intersection of E Lk Sammamish Pkwy SE/SE 43rd Way or SE 43rd Way along the property frontage as a HAL. The Mallard Bay Residential project will add more than 10 peak hour trips to SE 43rd Way, but the additional traffic generated by the proposed Mallard Bay Residential project is not expected to create a significant adverse impact on traffic safety of the SE 43rd Way corridor.

Site Access Level of Service

Weekday AM and PM peak hour LOS, delays, and queues were evaluated at the proposed site access on SE 43rd Way. LOS and queue calculations at the proposed site access were based on methodology and procedures outlined in the 2010 update of the *Highway Capacity Manual*, Transportation Research Board (HCM 2010) using *Synchro 8.0* software. LOS and queues were evaluated for future year 2018 with-project conditions assuming a stop sign would control the side-street turns from the proposed site access. The LOS analyses also assume the proposed frontage improvements along SE 43rd Way, which includes road widening to accommodate a new 50-foot refuge lane for left-turns exiting the proposed site. The results of the LOS analysis at the proposed site access are summarized in the **Table 4** below. Detailed LOS results are provided in **Attachment C**.

Table 4
LOS and Queue Analysis at Proposed Site Access on SE 43rd Way

Location (movement)	2018 With-Project AM Peak Hour LOS[1]	Delay [2] (sec/veh)	95th % Queue[3]	2018 With-Project PM Peak Hour LOS	Delay (sec/veh)	95th % Queue
SE 43rd Way / Site Access Dwy:						
Site Exiting Left & Right-Turns	C	16.9	< 1 veh	C	23.2	< 1 veh

1. LOS = Level of Service.
2. Delay refers to average control delay in seconds per vehicle
3. 95th percentile queues represent queues (in feet) that are only expected to be exceeded 5 percent of the time.

As shown in **Table 4**, the side-street turns from the proposed site access are anticipated to operate at LOS C during the AM and PM peak hours in 2018 with the proposed Mallard Bay Residential project and the proposed widening on SE 43rd Way for a refuge lane for left-turns exiting the site.

Left-Turn Channelization

As part of the channelization and frontage evaluation, both inbound and outbound left-turn channelization were considered at the proposed site access location on SE 43rd Way. In addition to any proposed left-turn lane improvements, the project will be required to construct frontage improvements that will include widening for bicycle lanes and a new 8-foot sidewalk.

Inbound Left-Turn

The inbound left-turn was evaluated based on location of the access and proximity to the roundabout. Because inbound left-turns from southwest-bound SE 43rd Way coming down the hill can be accommodated at the E Lk Sammamish Pkwy SE (ELSP) roundabout, an inbound left-turn lane on SE 43rd Way at the site access is not proposed.

Exit Left-Turn

An exiting left-turn was also evaluated. It is estimated that 90 percent of the vehicles exiting the site would travel toward ELSP, which would warrant consideration of an exiting left-turn maneuver from the site access. Without an exit left-turn, vehicles would turn right and seek an alternative left-turn maneuver, which is expected to result in illegal and unsafe turns and maneuvers to the north on SE 43rd Way, including impacts to private driveways and illegal u-turns at intersections along SE 43rd Way. As a result, it is proposed that exiting left-turns from the site be accommodated within a new center refuge lane and merge onto SE 43rd Way.

SE 43rd Way Merge Lane and Taper

To accommodate the exiting left-turns from the site access, SE 43rd Way would be widened along the property frontage to provide a new 50-foot refuge lane and merge taper. The proposed channelization improvements are illustrated in **Attachment D**. This design is expected to be a better solution than restricting outbound left-turns from the site access because it would reduce the number illegal u-turns and unsafe turn maneuvers if vehicles exiting the site could not turn left from the driveway.

The 50-foot merge lane is intended to accommodate storage for a single vehicle before merging onto SE 43rd Way. The acceleration taper would be designed to meet WSDOT design standard with a 21:1 taper based on 35 mph posted speed.

The merge lane and acceleration taper are not anticipated to impact roundabout function. As designed, the acceleration taper will terminate approximately 145 feet from the roundabout's circulating roadway. The merge lane and acceleration taper are not anticipated to impact the pedestrian crossing. As designed, the acceleration taper will terminate approximately 115 feet from the crosswalk on SE 43rd Way.

Conclusion

Based on the anticipated LOS C operation during the weekday AM and PM peak hours, adequate sight distance, consideration of accident history and travel speeds along SE 43rd Way, the addition of an exiting left-turn merge lane would adequately accommodate left-turn movements out of the site. Entering traffic from southwest-bound SE 43rd Way down the hill would use the roundabout at E Lake Sammamish Pkwy SE to enter the site access via a northbound right-turn maneuver. Right-in and right-out movements would be accommodated at the driveway as well.

If you have any questions regarding the information presented in this analysis, please contact me at (425) 250-0581 or schramm@tenw.com.

cc: Leo Suver – Steve Burnstead Construction, LLC
Jeff Haynie, P.E. – TENW Principal
Chris Bicket, P.E. – TENW Design Manager

Attachments:
A. Detailed Trip Generation Calculations
B. Existing Traffic Counts
C. LOS Analysis Results
D. Entering Sight Distance Exhibit
E. Speed Study Results on SE 43rd Way
F. Collision History as provided by WSDOT

ATTACHMENT A

Detailed Trip Generation Calculations

Mallard Bay Residential
Trip Generation

DAILY

Land Use	Units		ITE LUC [1]	Directional Split In	Directional Split Out	Trip Rate Total	Trips Generated In	Trips Generated Out	Trips Generated Total
Proposed Use									
Single-Family	34	Dwelling Units	210	50%	50%	*Equation*	194	195	389
Total New Weekday Daily Trips Generated =							**194**	**195**	**389**

AM PEAK HOUR

Land Use	Units		ITE LUC [1]	Directional Split In	Directional Split Out	Trip Rate Total	Trips Generated In	Trips Generated Out	Trips Generated Total
Proposed Use									
Single-Family	34	Dwelling Units	210	25%	75%	*Equation*	8	26	34
Total New AM Peak Hour Trips Generated =							**8**	**26**	**34**

PM PEAK HOUR

Land Use	Units		ITE LUC [1]	Directional Split In	Directional Split Out	Trip Rate Total	Trips Generated In	Trips Generated Out	Trips Generated Total
Proposed Use									
Single-Family	34	Dwelling Units	210	63%	37%	*Equation*	25	15	40
Total New PM Peak Hour Trips Generated =							**25**	**15**	**40**

Notes:

[1] Institute of Transportation Engineers, *Trip Generation* Manual, 9th Edition, 2012 Land Use Codes.

ATTACHMENT B

Existing Traffic Counts

Peak Hour Summary

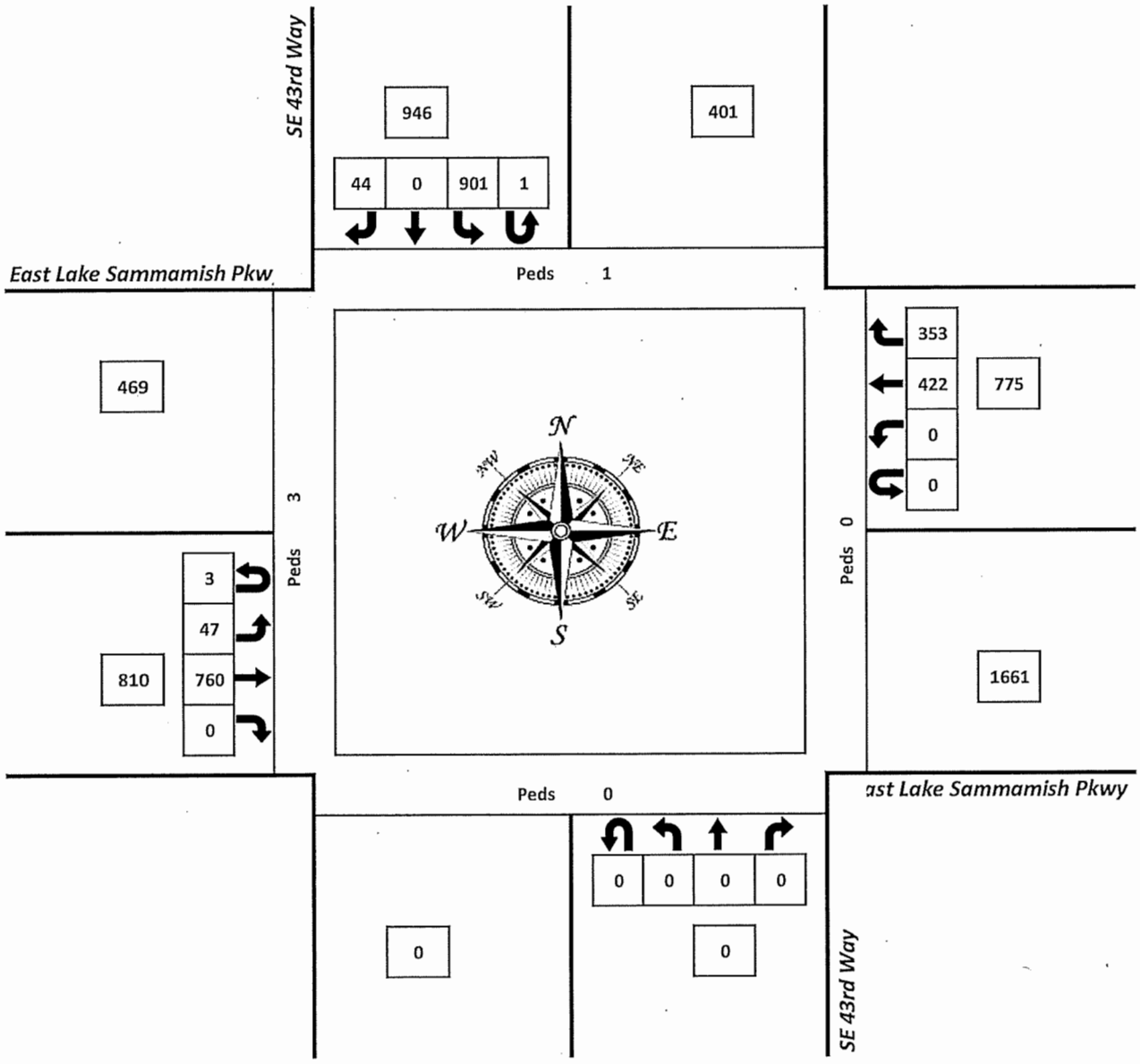
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

07:15 AM to 08:15 AM

Thursday, November 17, 2016



Approach	PHF	HV%	Volume
EB	0.85	0.6%	810
WB	0.95	3.7%	775
NB	0.00	0.0%	0
SB	0.90	1.2%	946
Intersection	0.96	1.8%	2,531

Count Period: 07:00 AM to 09:00 AM

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Total Vehicle Summary

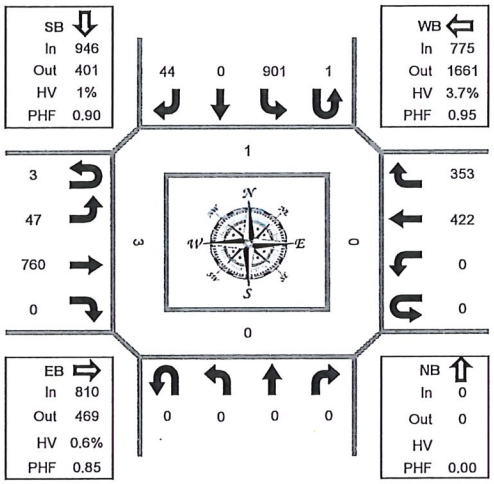
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

Thursday, November 17, 2016

07:00 AM to 09:00 AM



Peak Hour Summary
07:15 AM to 08:15 AM

15-Minute Interval Summary
07:00 AM to 09:00 AM

Interval Start Time	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
7:00 AM	0	7	175	0	0	0	74	78	0	0	0	0	3	188	0	7	532
7:15 AM	1	36	200	0	0	0	103	80	0	0	0	0	1	213	0	7	641
7:30 AM	1	9	192	0	0	0	113	83	0	0	0	0	0	243	0	19	660
7:45 AM	0	1	191	0	0	0	92	99	0	0	0	0	0	234	0	13	630
8:00 AM	1	1	177	0	0	0	114	91	0	0	0	0	0	211	0	5	600
8:15 AM	0	2	160	0	2	0	77	112	0	0	0	0	0	228	0	5	586
8:30 AM	0	2	150	0	1	0	101	139	0	0	0	0	1	258	0	8	660
8:45 AM	1	8	174	0	2	0	103	139	0	0	0	0	0	247	0	4	678
Total Survey	4	66	1419	0	5	0	777	821	0	0	0	0	5	1822	0	68	4987

Pedestrians & Bicycles In Crosswalk (By Location)			
West	East	South	North
1	0	0	0
1	0	0	1
0	0	0	0
1	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
4	0	0	1

Peak Hour Summary
07:15 AM to 08:15 AM

By Approach	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Total
	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	
Volume	810	469	1279	5	775	1661	2436	29	0	0	0	0	946	401	1347	11	2531
HV %	0.6%				3.7%								1.2%				1.8%
PHF	0.85				0.95				0.00				0.90				0.96

Pedestrians In Crosswalk (By Location)			
West	East	South	North
3	0	0	1

By Movement	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Volume	3	47	760	0	0	0	422	353	0	0	0	0	1	901	0	44	2531
HV %	NA	2.1%	0.5%	0.0%	NA	0.0%	3.6%	4.0%	NA	0.0%	0.0%	0.0%	NA	1.1%	0.0%	2.3%	1.8%
PHF	NA	0.33	0.95		NA		0.93	0.89	NA				NA	1.38		0.92	0.96

Rolling Hour Summary
07:00 AM to 09:00 AM

Interval Start Time	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
7:00 AM	2	53	758	0	0	0	382	340	0	0	0	0	4	878	0	46	2463
7:15 AM	3	47	760	0	0	0	422	353	0	0	0	0	1	901	0	44	2531
7:30 AM	2	13	720	0	2	0	396	385	0	0	0	0	0	916	0	42	2476
7:45 AM	1	6	678	0	3	0	384	441	0	0	0	0	1	931	0	31	2476
8:00 AM	2	13	661	0	5	0	395	481	0	0	0	0	1	944	0	22	2524
8:15 AM	1	12	484	0	5	0	281	390	0	0	0	0	1	733	0	17	1924
8:30 AM	1	10	324	0	3	0	204	278	0	0	0	0	1	505	0	12	1338
8:45 AM	1	8	174	0	2	0	103	139	0	0	0	0	0	247	0	4	678

Pedestrians In Crosswalk (By Location)			
West	East	South	North
3	0	0	1
3	0	0	1
2	0	0	0
2	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Heavy Vehicle Summary

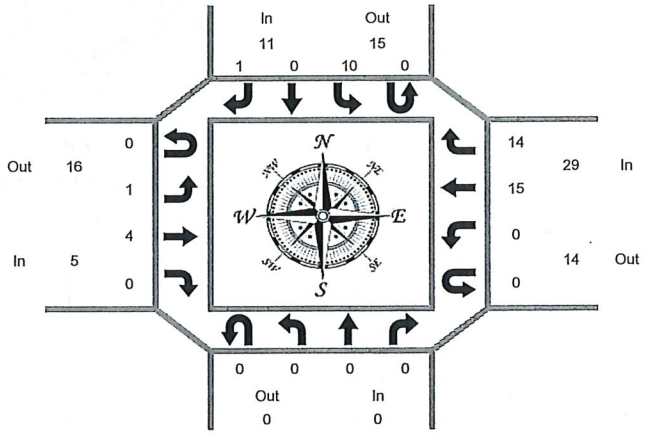
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

Thursday, November 17, 2016

07:00 AM to 09:00 AM



Peak Hour Summary
07:15 AM to 08:15 AM

15-Minute Interval Summary

07:00 AM to 09:00 AM

Interval Start Time	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	1	0	1	0	0	2	1	3	0	0	0	0	0	0	2	0	0	2	6
7:15 AM	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	2	0	0	2	7
7:30 AM	0	1	1	0	2	0	0	5	2	7	0	0	0	0	0	0	3	0	0	3	12
7:45 AM	0	0	3	0	3	0	0	4	6	10	0	0	0	0	0	0	3	0	1	4	17
8:00 AM	0	0	0	0	0	0	0	3	4	7	0	0	0	0	0	0	2	0	0	2	9
8:15 AM	0	0	2	0	2	0	0	9	6	15	0	0	0	0	0	0	5	0	0	5	22
8:30 AM	0	0	4	0	4	0	0	6	8	14	0	0	0	0	0	0	1	0	1	2	20
8:45 AM	0	0	7	0	7	0	0	11	6	17	0	0	0	0	0	0	1	0	0	1	25
Total Survey	0	1	18	0	19	0	0	43	35	78	0	0	0	0	0	0	19	0	2	21	118

Peak Hour Summary

07:15 AM to 08:15 AM

By Approach	Eastbound East Lake Sammamish Pkwy			Westbound East Lake Sammamish Pkwy			Northbound SE 43rd Way			Southbound SE 43rd Way			Total
	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	
Volume	5	16	21	29	14	43	0	0	0	11	15	26	45

By Movement	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
Volume	0	1	4	0	5	0	0	15	14	29	0	0	0	0	0	0	10	0	1	11	79

Rolling Hour Summary

07:00 AM to 09:00 AM

Interval Start Time	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	1	5	0	6	0	0	14	11	25	0	0	0	0	0	0	10	0	1	11	42
7:15 AM	0	1	4	0	5	0	0	15	14	29	0	0	0	0	0	0	10	0	1	11	45
7:30 AM	0	1	6	0	7	0	0	21	18	39	0	0	0	0	0	0	13	0	1	14	60
7:45 AM	0	0	9	0	9	0	0	22	24	46	0	0	0	0	0	0	11	0	2	13	68
8:00 AM	0	0	13	0	13	0	0	29	24	53	0	0	0	0	0	0	9	0	1	10	76
8:15 AM	0	0	13	0	13	0	0	26	20	46	0	0	0	0	0	0	7	0	1	8	67
8:30 AM	0	0	11	0	11	0	0	17	14	31	0	0	0	0	0	0	2	0	1	3	45
8:45 AM	0	0	7	0	7	0	0	11	6	17	0	0	0	0	0	0	1	0	0	1	25

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Peak Hour Summary

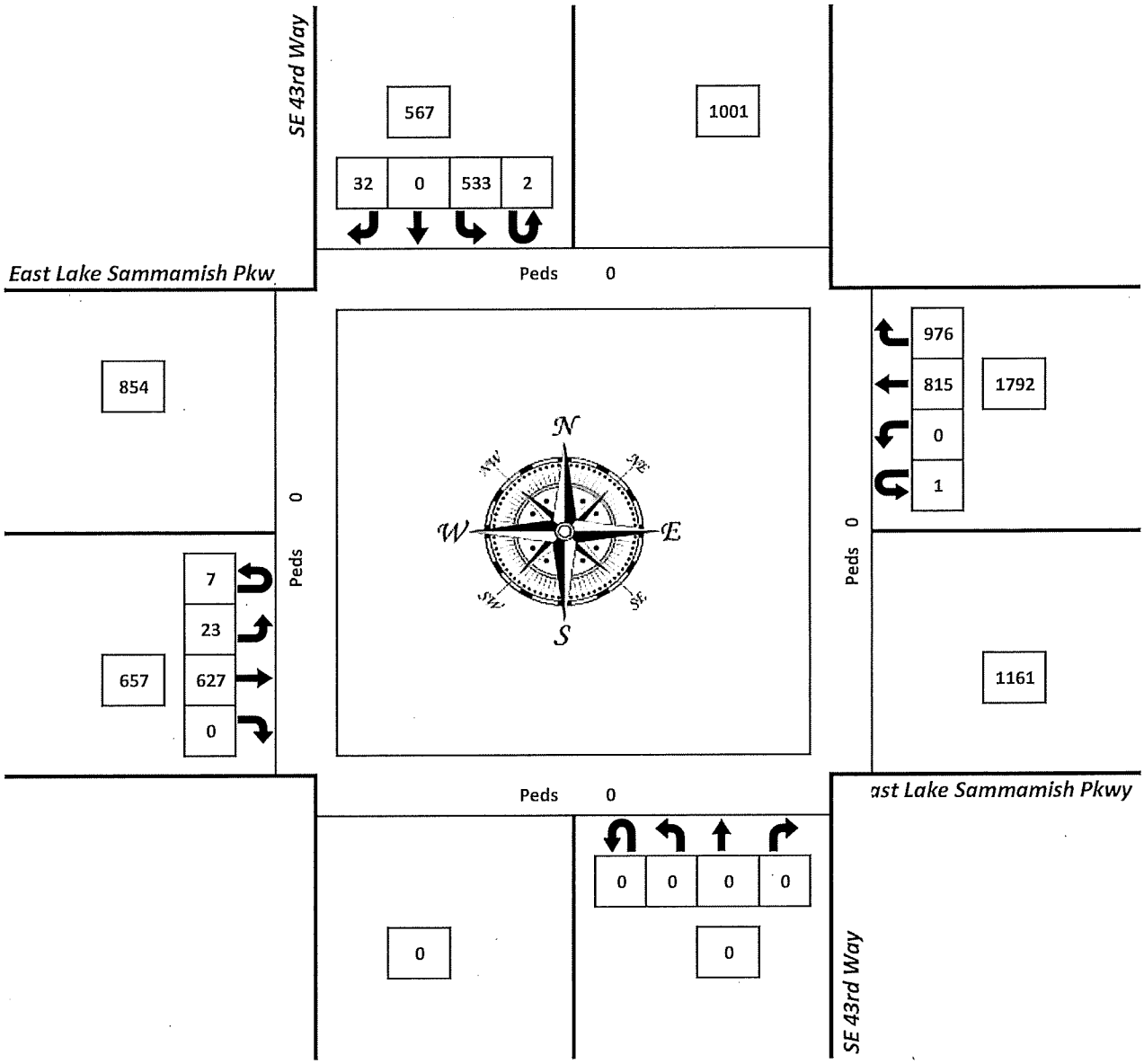
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

04:45 PM to 05:45 PM

Thursday, November 17, 2016



Approach	PHF	HV%	Volume
EB	0.98	2.2%	657
WB	0.94	0.3%	1,792
NB	0.00	0.0%	0
SB	0.81	0.7%	567
Intersection	0.93	0.8%	3,016

Count Period: 04:00 PM to 06:00 PM

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Total Vehicle Summary

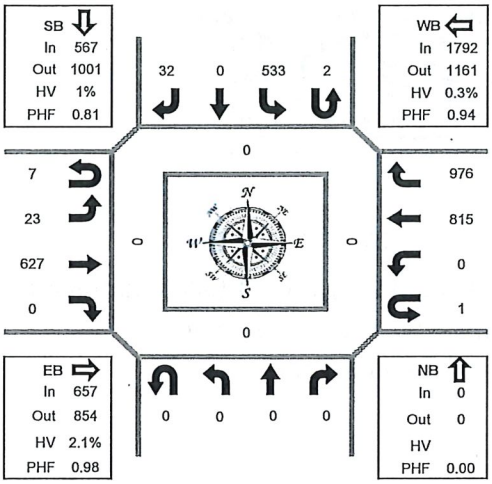
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

Thursday, November 17, 2016

04:00 PM to 06:00 PM



Peak Hour Summary
04:45 PM to 05:45 PM

15-Minute Interval Summary
04:00 PM to 06:00 PM

Interval Start Time	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Interval Total	Pedestrians & Bicycles In Crosswalk (By Location)			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		West	East	South	North
4:00 PM	1	8	142	0	0	0	160	193	0	0	0	0	0	147	0	6	657	0	0	0	0
4:15 PM	0	7	198	0	2	0	192	187	0	0	0	0	1	150	0	9	746	0	0	0	0
4:30 PM	0	5	187	0	2	0	184	209	0	0	0	0	0	134	0	8	729	0	0	0	0
4:45 PM	2	5	155	0	0	0	190	238	0	0	0	0	0	132	0	8	730	0	0	0	0
5:00 PM	3	1	165	0	1	0	208	208	0	0	0	0	1	127	0	4	718	0	0	0	0
5:15 PM	2	8	153	0	0	0	200	270	0	0	0	0	0	163	0	12	808	0	0	0	0
5:30 PM	0	9	154	0	0	0	217	260	0	0	0	0	1	111	0	8	760	0	0	0	0
5:45 PM	1	10	136	0	0	0	197	230	0	0	0	0	1	95	0	1	671	0	0	0	0
Total Survey	9	53	1290	0	5	0	1548	1795	0	0	0	0	4	1059	0	56	5819	0	0	0	0

Peak Hour Summary
04:45 PM to 05:45 PM

By Approach	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Total	Pedestrians In Crosswalk (By Location)			
	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV		West	East	South	North
Volume	657	854	1511	14	1792	1161	2953	6	0	0	0	0	567	1001	1568	4	3016	0	0	0	0
HV %	2.1%				0.3%								0.7%				0.8%				
PHF	0.98				0.94				0.00				0.81				0.93				

By Movement	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Volume	7	23	627	0	1	0	815	976	0	0	0	0	2	533	0	32	3016
HV %	NA	0.0%	2.2%	0.0%	NA	0.0%	0.4%	0.3%	NA	0.0%	0.0%	0.0%	NA	0.6%	0.0%	3.1%	0.8%
PHF	NA	0.64	0.95		NA		0.94	0.90	NA				NA	0.82		0.67	0.93

Rolling Hour Summary
04:00 PM to 06:00 PM

Interval Start Time	Eastbound East Lake Sammamish Pkwy				Westbound East Lake Sammamish Pkwy				Northbound SE 43rd Way				Southbound SE 43rd Way				Interval Total	Pedestrians In Crosswalk (By Location)			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		West	East	South	North
4:00 PM	3	25	682	0	4	0	726	827	0	0	0	0	1	563	0	31	2862	0	0	0	0
4:15 PM	5	18	705	0	5	0	774	842	0	0	0	0	2	543	0	29	2923	0	0	0	0
4:30 PM	7	19	660	0	3	0	782	925	0	0	0	0	1	556	0	32	2985	0	0	0	0
4:45 PM	7	23	627	0	1	0	815	976	0	0	0	0	2	533	0	32	3016	0	0	0	0
5:00 PM	6	28	608	0	1	0	822	968	0	0	0	0	3	496	0	25	2957	0	0	0	0
5:15 PM	3	27	443	0	0	0	614	760	0	0	0	0	2	369	0	21	2239	0	0	0	0
5:30 PM	1	19	290	0	0	0	414	490	0	0	0	0	2	206	0	9	1431	0	0	0	0
5:45 PM	1	10	136	0	0	0	197	230	0	0	0	0	1	95	0	1	671	0	0	0	0

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Heavy Vehicle Summary

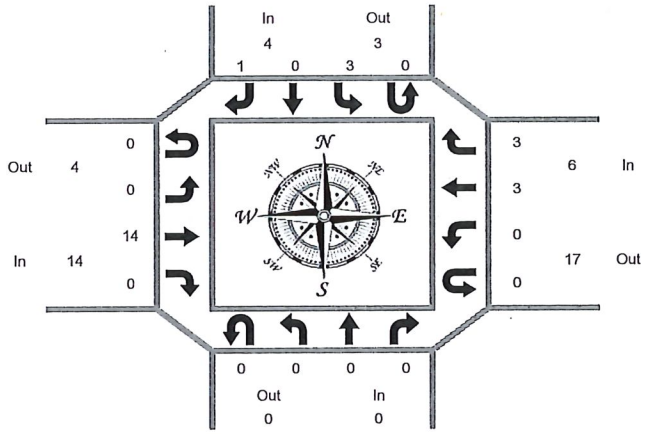
National Data & Surveying Services

Site ID: 16-2062-001

SE 43rd Way & East Lake Sammamish Pkwy

Thursday, November 17, 2016

04:00 PM to 06:00 PM



Peak Hour Summary
04:45 PM to 05:45 PM

15-Minute Interval Summary

04:00 PM to 06:00 PM

Interval Start Time	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	4	0	4	0	0	5	2	7	0	0	0	0	0	0	3	0	2	5	16
4:15 PM	0	2	8	0	10	0	0	0	1	1	0	0	0	0	0	0	3	0	0	3	14
4:30 PM	0	0	5	0	5	0	0	2	0	2	0	0	0	0	0	0	4	0	1	5	12
4:45 PM	0	0	4	0	4	0	0	1	1	2	0	0	0	0	0	0	2	0	0	2	8
5:00 PM	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	7
5:15 PM	0	0	5	0	5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	1	1	3
5:45 PM	0	0	1	0	1	0	0	2	1	3	0	0	0	0	0	0	1	0	0	1	5
Total Survey	0	2	32	0	34	0	0	12	7	19	0	0	0	0	0	0	14	0	4	18	71

Peak Hour Summary

04:45 PM to 05:45 PM

By Approach	Eastbound East Lake Sammamish Pkwy			Westbound East Lake Sammamish Pkwy			Northbound SE 43rd Way			Southbound SE 43rd Way			Total
	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	
Volume	14	4	18	6	17	23	0	0	0	4	3	7	24

By Movement	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
Volume	0	0	14	0	14	0	0	3	3	6	0	0	0	0	0	0	3	0	1	4	44

Rolling Hour Summary

04:00 PM to 06:00 PM

Interval Start Time	Eastbound East Lake Sammamish Pkwy					Westbound East Lake Sammamish Pkwy					Northbound SE 43rd Way					Southbound SE 43rd Way					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	2	21	0	23	0	0	8	4	12	0	0	0	0	0	0	12	0	3	15	50
4:15 PM	0	2	22	0	24	0	0	4	2	6	0	0	0	0	0	0	10	0	1	11	41
4:30 PM	0	0	19	0	19	0	0	4	2	6	0	0	0	0	0	0	7	0	1	8	33
4:45 PM	0	0	14	0	14	0	0	3	3	6	0	0	0	0	0	0	3	0	1	4	24
5:00 PM	0	0	11	0	11	0	0	4	3	7	0	0	0	0	0	0	2	0	1	3	21
5:15 PM	0	0	6	0	6	0	0	3	3	6	0	0	0	0	0	0	1	0	1	2	14
5:30 PM	0	0	1	0	1	0	0	3	2	5	0	0	0	0	0	0	1	0	1	2	8
5:45 PM	0	0	1	0	1	0	0	2	1	3	0	0	0	0	0	0	1	0	0	1	5

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Peak Hour Summary

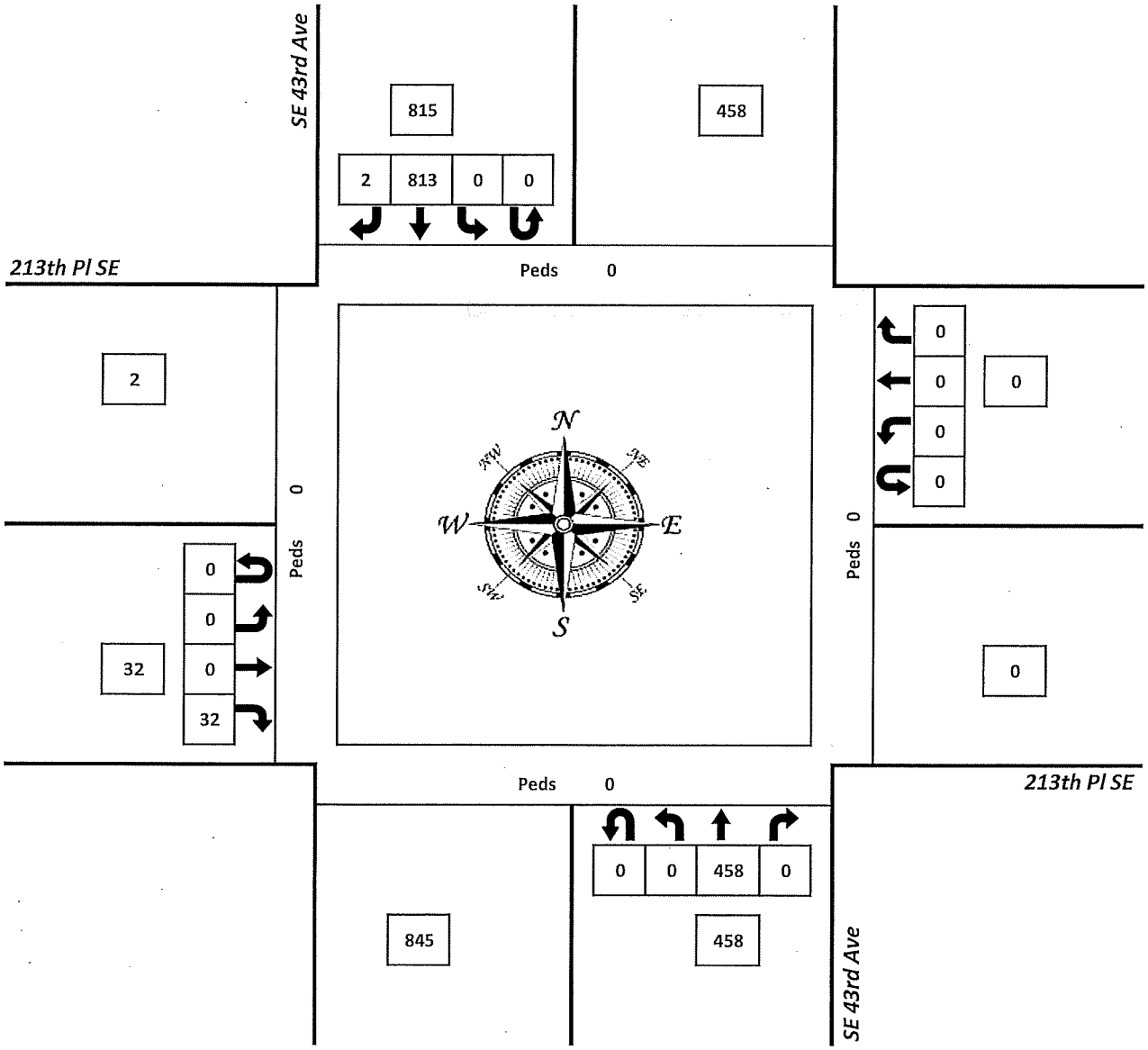
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

07:00 AM to 08:00 AM

Wednesday, December 07, 2016



Approach	PHF	HV%	Volume
EB	0.62	0.0%	32
WB	0.00	0.0%	0
NB	0.89	4.6%	458
SB	0.87	1.6%	815
Intersection	0.92	2.6%	1,305

Count Period: 07:00 AM to 09:00 AM

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Total Vehicle Summary

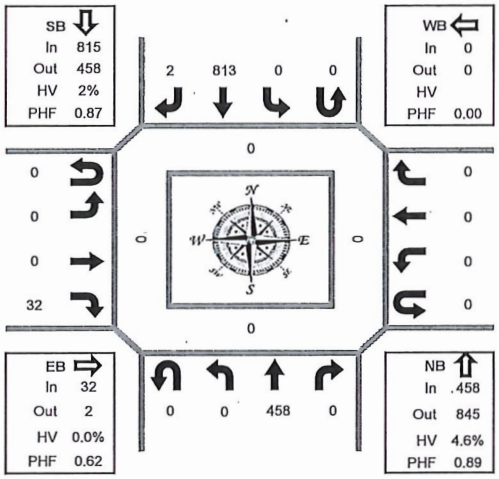
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

Wednesday, December 07, 2016

07:00 AM to 09:00 AM



Peak Hour Summary
07:00 AM to 08:00 AM

15-Minute Interval Summary
07:00 AM to 09:00 AM

Interval Start Time	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
7:00 AM	0	0	0	9	0	0	0	0	0	0	101	0	0	0	184	0	294
7:15 AM	0	0	0	5	0	0	0	0	0	0	129	0	0	0	182	0	316
7:30 AM	0	0	0	5	0	0	0	0	0	0	123	0	0	0	213	1	342
7:45 AM	0	0	0	13	0	0	0	0	0	0	105	0	0	0	234	1	353
8:00 AM	0	0	0	3	0	0	0	0	0	0	90	0	0	0	195	2	290
8:15 AM	0	0	0	6	0	0	0	0	0	0	97	0	0	0	185	1	289
8:30 AM	0	0	0	9	0	0	0	0	0	0	131	0	0	0	215	1	356
8:45 AM	0	0	0	4	0	0	0	0	0	0	113	0	0	0	207	0	324
Total Survey	0	0	0	54	0	0	0	0	0	0	889	0	0	0	1615	6	2564

Pedestrians & Bicycles In Crosswalk (By Location)			
West	East	South	North
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0

Peak Hour Summary
07:00 AM to 08:00 AM

By Approach	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Total
	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	
Volume	32	2	34	0	0	0	0	0	458	845	1303	21	815	458	1273	13	1305
HV %	0.0%								4.6%				1.6%				2.6%
PHF	0.62				0.00				0.89				0.87				0.92

Pedestrians In Crosswalk (By Location)			
West	East	South	North
0	0	0	0

By Movement	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Volume	0	0	0	32	0	0	0	0	0	0	458	0	0	0	813	2	1305
HV %	NA	0.0%	0.0%	0.0%	NA	0.0%	0.0%	0.0%	NA	0.0%	4.6%	0.0%	NA	0.0%	1.6%	0.0%	2.6%
PHF	NA			0.62	NA				NA		0.89		NA		1.02	0.50	0.92

Rolling Hour Summary
07:00 AM to 09:00 AM

Interval Start Time	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
7:00 AM	0	0	0	32	0	0	0	0	0	0	458	0	0	0	813	2	1305
7:15 AM	0	0	0	26	0	0	0	0	0	0	447	0	0	0	824	4	1301
7:30 AM	0	0	0	27	0	0	0	0	0	0	415	0	0	0	827	5	1274
7:45 AM	0	0	0	31	0	0	0	0	0	0	423	0	0	0	829	5	1288
8:00 AM	0	0	0	22	0	0	0	0	0	0	431	0	0	0	802	4	1259
8:15 AM	0	0	0	19	0	0	0	0	0	0	341	0	0	0	607	2	969
8:30 AM	0	0	0	13	0	0	0	0	0	0	244	0	0	0	422	1	680
8:45 AM	0	0	0	4	0	0	0	0	0	0	113	0	0	0	207	0	324

Pedestrians In Crosswalk (By Location)			
West	East	South	North
0	0	0	0
1	0	0	0
1	0	0	0
1	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Heavy Vehicle Summary

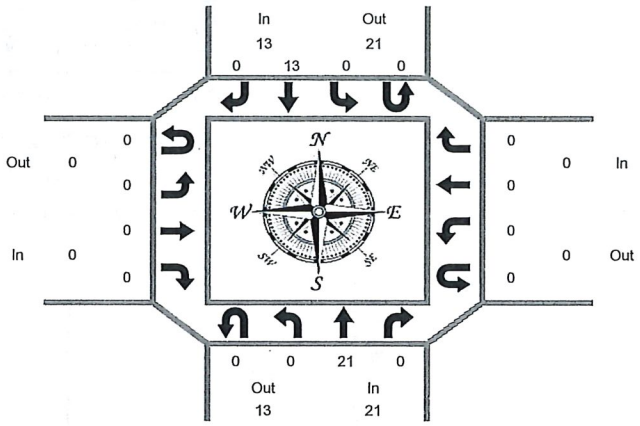
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

Wednesday, December 07, 2016

07:00 AM to 09:00 AM



Peak Hour Summary
07:00 AM to 08:00 AM

15-Minute Interval Summary

07:00 AM to 09:00 AM

Interval Start Time	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	0	3	0	3	8
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	2	0	2	6
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	0	4	10
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	0	4	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	0	0	2	0	2	11
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	1	0	1	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	1	0	1	7
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	0	4	10
Total Survey	0	0	0	0	0	0	0	0	0	0	0	0	46	0	46	0	0	21	0	21	67

Peak Hour Summary

07:00 AM to 08:00 AM

By Approach	Eastbound 213th Pl SE			Westbound 213th Pl SE			Northbound SE 43rd Ave			Southbound SE 43rd Ave			Total
	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	
Volume	0	0	0	0	0	0	21	13	34	13	21	34	34

By Movement	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
Volume	0	0	0	0	0	0	0	0	0	0	0	0	21	0	21	0	0	13	0	13	55

Rolling Hour Summary

07:00 AM to 09:00 AM

Interval Start Time	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	21	0	21	0	0	13	0	13	34
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	25	0	25	0	0	12	0	12	37
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	25	0	25	0	0	11	0	11	36
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	25	0	25	0	0	8	0	8	33
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	25	0	25	0	0	8	0	8	33
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	16	0	16	0	0	6	0	6	22
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12	0	0	5	0	5	17
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	0	4	10

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Peak Hour Summary

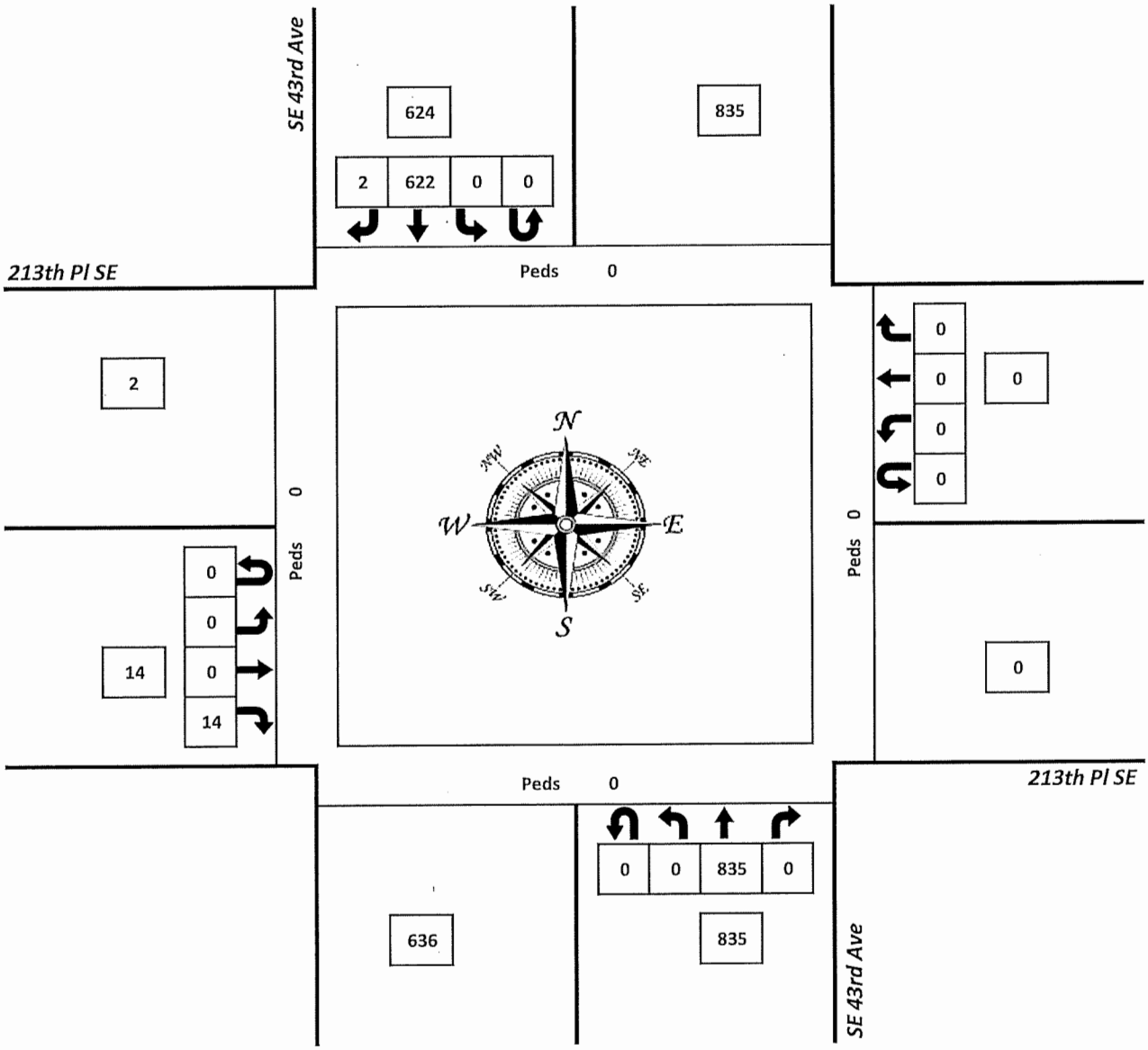
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

04:00 PM to 05:00 PM

Wednesday, December 07, 2016



Approach	PHF	HV%	Volume
EB	0.88	0.0%	14
WB	0.00	0.0%	0
NB	0.98	0.7%	835
SB	0.78	2.9%	624
Intersection	0.92	1.6%	1,473

Count Period: 04:00 PM to 06:00 PM

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Total Vehicle Summary

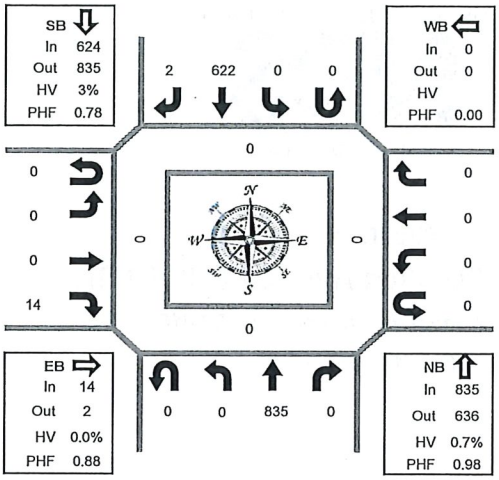
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

Wednesday, December 07, 2016

04:00 PM to 06:00 PM



Peak Hour Summary
04:00 PM to 05:00 PM

15-Minute Interval Summary
04:00 PM to 06:00 PM

Interval Start Time	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
4:00 PM	0	0	0	4	0	0	0	0	0	0	197	0	0	0	199	0	400
4:15 PM	0	0	0	2	0	0	0	0	0	0	212	0	0	0	147	1	362
4:30 PM	0	0	0	4	0	0	0	0	0	0	214	0	0	0	149	0	367
4:45 PM	0	0	0	4	0	0	0	0	0	0	212	0	0	0	127	1	344
5:00 PM	0	0	0	4	0	0	0	0	0	0	207	0	0	0	130	2	343
5:15 PM	0	0	0	2	0	0	0	0	0	0	226	0	0	0	131	2	361
5:30 PM	0	0	0	1	0	0	0	0	0	0	197	0	0	0	137	0	335
5:45 PM	0	0	0	2	0	0	0	0	0	0	233	0	0	0	108	2	345
Total Survey	0	0	0	23	0	0	0	0	0	0	1698	0	0	0	1128	8	2857

Pedestrians & Bicycles In Crosswalk (By Location)			
West	East	South	North
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Peak Hour Summary
04:00 PM to 05:00 PM

By Approach	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Total
	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	IN	OUT	Total	HV	
Volume	14	2	16	0	0	0	0	0	835	636	1471	6	624	835	1459	18	1473
HV %	0.0%								0.7%				2.9%				1.6%
PHF	0.88				0.00				0.98				0.78				0.92

Pedestrians In Crosswalk (By Location)			
West	East	South	North
0	0	0	0

By Movement	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Volume	0	0	0	14	0	0	0	0	0	0	835	0	0	0	622	2	1473
HV %	NA	0.0%	0.0%	0.0%	NA	0.0%	0.0%	0.0%	NA	0.0%	0.7%	0.0%	NA	0.0%	2.9%	0.0%	1.6%
PHF	NA			0.88	NA				NA		0.98		NA		0.78	0.50	0.92

Rolling Hour Summary
04:00 PM to 06:00 PM

Interval Start Time	Eastbound 213th Pl SE				Westbound 213th Pl SE				Northbound SE 43rd Ave				Southbound SE 43rd Ave				Interval Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
4:00 PM	0	0	0	14	0	0	0	0	0	0	835	0	0	0	622	2	1473
4:15 PM	0	0	0	14	0	0	0	0	0	0	845	0	0	0	553	4	1416
4:30 PM	0	0	0	14	0	0	0	0	0	0	859	0	0	0	537	5	1415
4:45 PM	0	0	0	11	0	0	0	0	0	0	842	0	0	0	525	5	1383
5:00 PM	0	0	0	9	0	0	0	0	0	0	863	0	0	0	506	6	1384
5:15 PM	0	0	0	5	0	0	0	0	0	0	656	0	0	0	376	4	1041
5:30 PM	0	0	0	3	0	0	0	0	0	0	430	0	0	0	245	2	680
5:45 PM	0	0	0	2	0	0	0	0	0	0	233	0	0	0	108	2	345

Pedestrians In Crosswalk (By Location)			
West	East	South	North
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Brian Nichols
(425) 250-6827
brian@ndsdata.com

Heavy Vehicle Summary

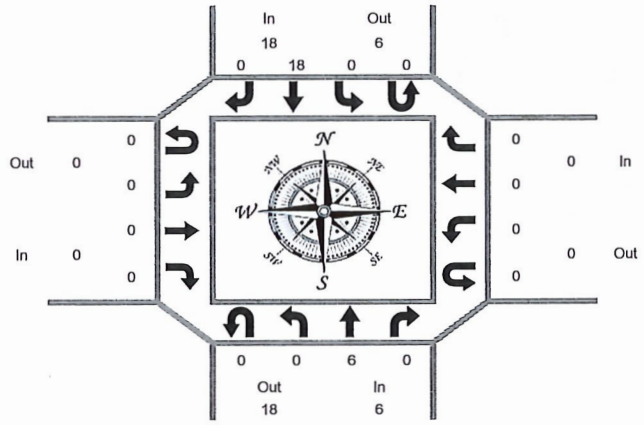
National Data & Surveying Services

Site ID: 16-2067-001

SE 43rd Ave & 213th Pl SE

Wednesday, December 07, 2016

04:00 PM to 06:00 PM



Peak Hour Summary
04:00 PM to 05:00 PM

15-Minute Interval Summary

04:00 PM to 06:00 PM

Interval Start Time	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8	8
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	0	0	4	0	4	9
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	3
Total Survey	0	0	0	0	0	0	0	0	0	0	0	0	9	0	9	0	0	24	0	24	33

Peak Hour Summary

04:00 PM to 05:00 PM

By Approach	Eastbound 213th Pl SE			Westbound 213th Pl SE			Northbound SE 43rd Ave			Southbound SE 43rd Ave			Total
	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	IN	OUT	Total	
Volume	0	0	0	0	0	0	6	18	24	18	6	24	24

By Movement	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
Volume	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	18	0	18	30

Rolling Hour Summary

04:00 PM to 06:00 PM

Interval Start Time	Eastbound 213th Pl SE					Westbound 213th Pl SE					Northbound SE 43rd Ave					Southbound SE 43rd Ave					Interval Total
	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	18	0	18	24
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	11	0	11	17
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	7	0	7	10
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	6	0	6	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	6	0	6	9
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	5	0	5	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	5	0	5	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	3

Brian Nichols
(425) 250-6827
brian@ndsdata.com

ATTACHMENT C

LOS Analysis Results

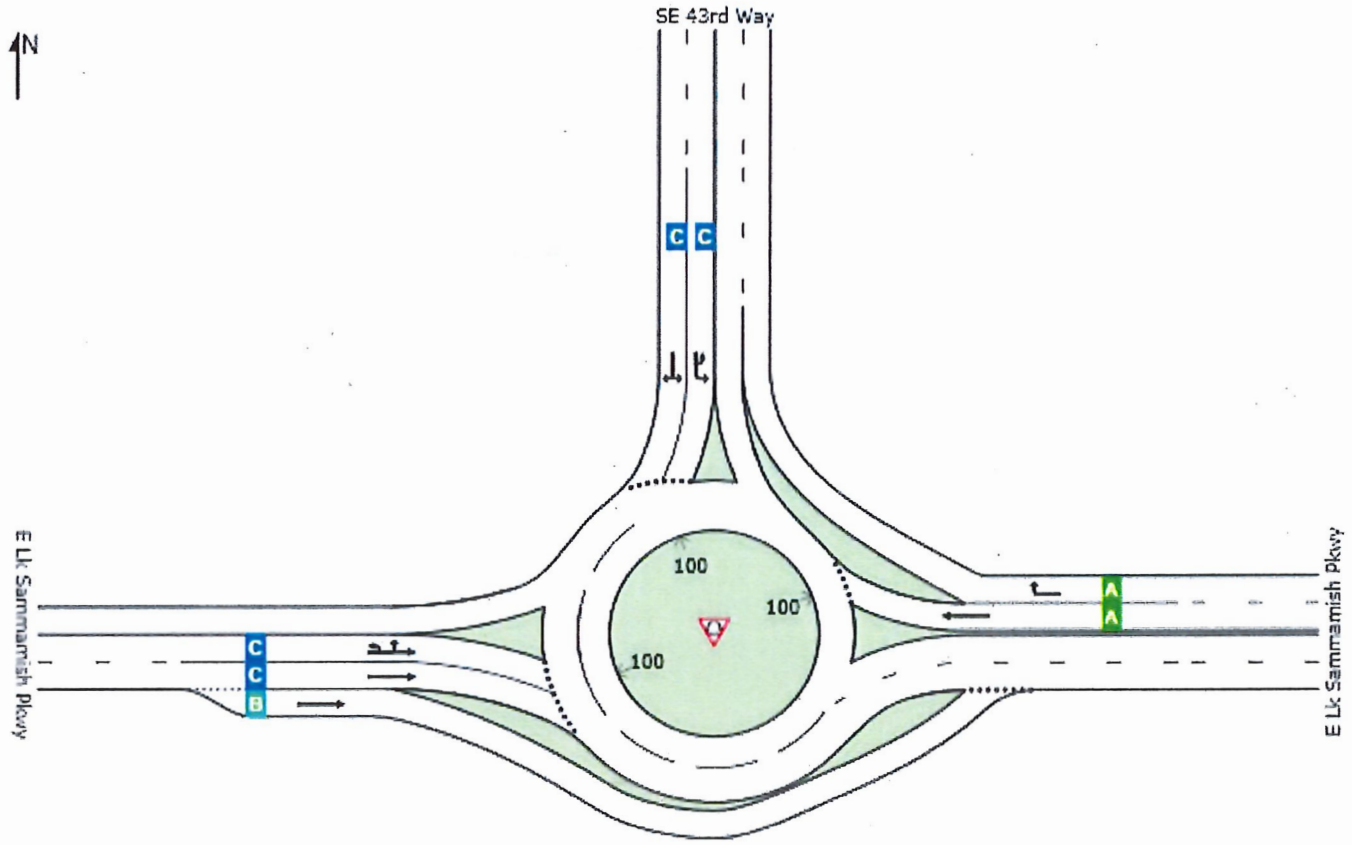
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way EXISTING AM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	A	C	C	C



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way EXISTING AM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	440	4.0	1030	0.427	100	8.2	LOS A	2.3	58.2	Full	1600	0.0	0.0
Lane 2	368	4.0	1610	0.228	100	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	807	4.0		0.427		4.5	LOS A	2.3	58.2				
North: SE 43rd Way													
Lane 1	493	1.0	706	0.698	100	19.5	LOS C	5.4	135.4	Full	1600	0.0	0.0
Lane 2[d]	493	1.0	706	0.698	100	19.5	LOS C	5.4	135.4	Full	1600	0.0	0.0
Approach	985	1.0		0.698		19.5	LOS C	5.4	135.4				
West: E Lk Sammamish Pkwy													
Lane 1	383	1.0	549	0.698	100	23.8	LOS C	3.6	89.6	Full	1600	0.0	0.0
Lane 2[d]	402	1.0	576	0.698	100	22.9	LOS C	3.4	86.9	Full	1600	0.0	0.0
Lane 3	59	1.0	344	0.171	25[6]	13.5	LOS B	0.4	10.9	Short	200	0.0	NA
Approach	844	1.0		0.698		22.6	LOS C	3.6	89.6				
Intersection	2636	1.9		0.698		15.9	LOS C	5.4	135.4				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

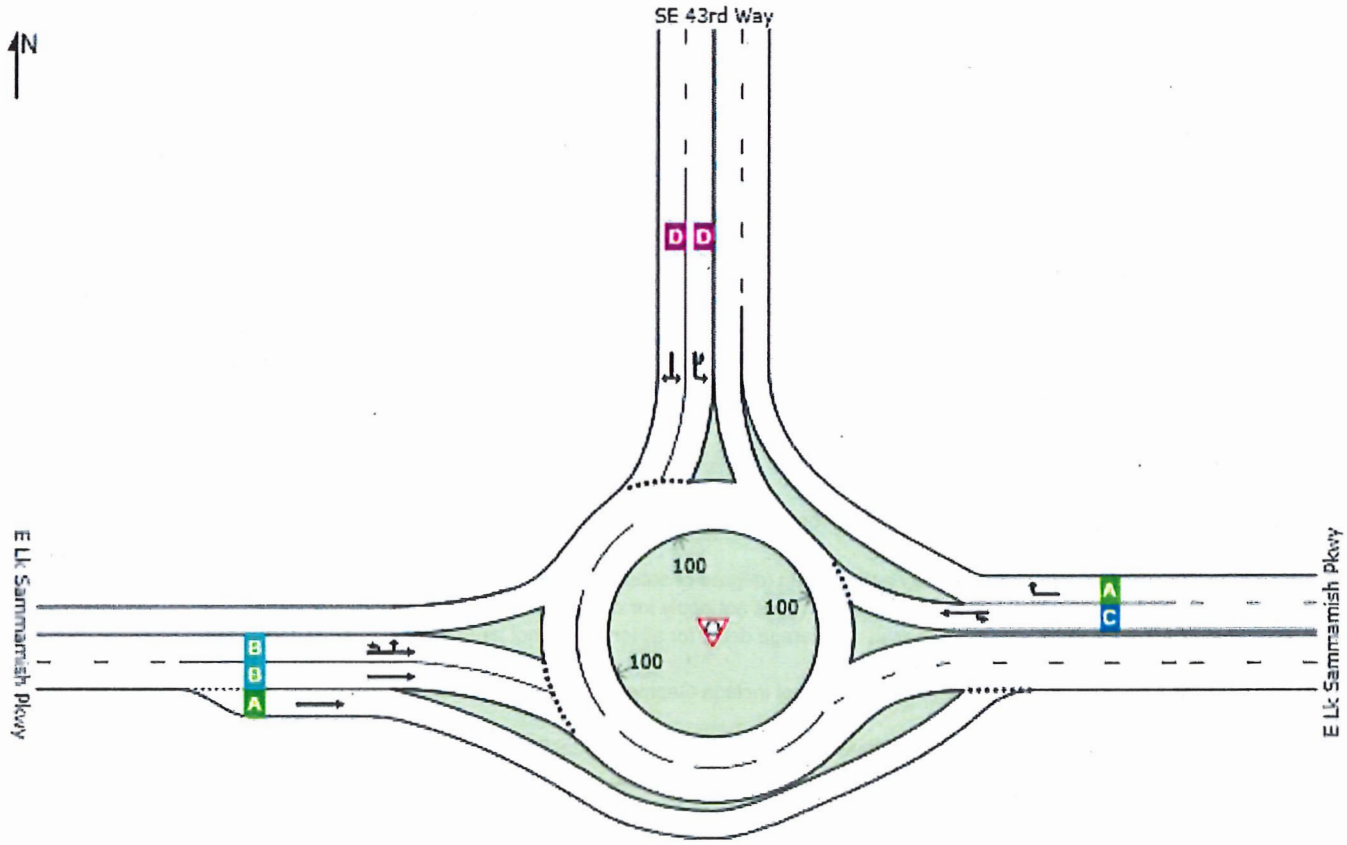
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way EXISTING PM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	A	D	B	B



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LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way EXISTING PM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	877	1.0	1080	0.812	100	20.0	LOS C	12.1	305.0	Full	1600	0.0	0.0
Lane 2	1049	1.0	1658	0.633	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	1927	1.0		0.812		9.2	LOS A	12.1	305.0				
North: SE 43rd Way													
Lane 1	305	1.0	458	0.666	100	25.5	LOS D	3.7	93.7	Full	1600	0.0	0.0
Lane 2[d]	305	1.0	458	0.666	100	25.5	LOS D	3.7	93.7	Full	1600	0.0	0.0
Approach	610	1.0		0.666		25.5	LOS D	3.7	93.7				
West: E Lk Sammamish Pkwy													
Lane 1	322	2.0	716	0.450	100	11.3	LOS B	1.8	44.7	Full	1600	0.0	0.0
Lane 2[d]	332	2.0	737	0.450	100	11.1	LOS B	1.7	42.7	Full	1600	0.0	0.0
Lane 3	52	2.0	474	0.111	25[6]	9.1	LOS A	0.3	7.1	Short	200	0.0	NA
Approach	707	2.0		0.450		11.0	LOS B	1.8	44.7				
Intersection	3243	1.2		0.812		12.7	LOS B	12.1	305.0				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

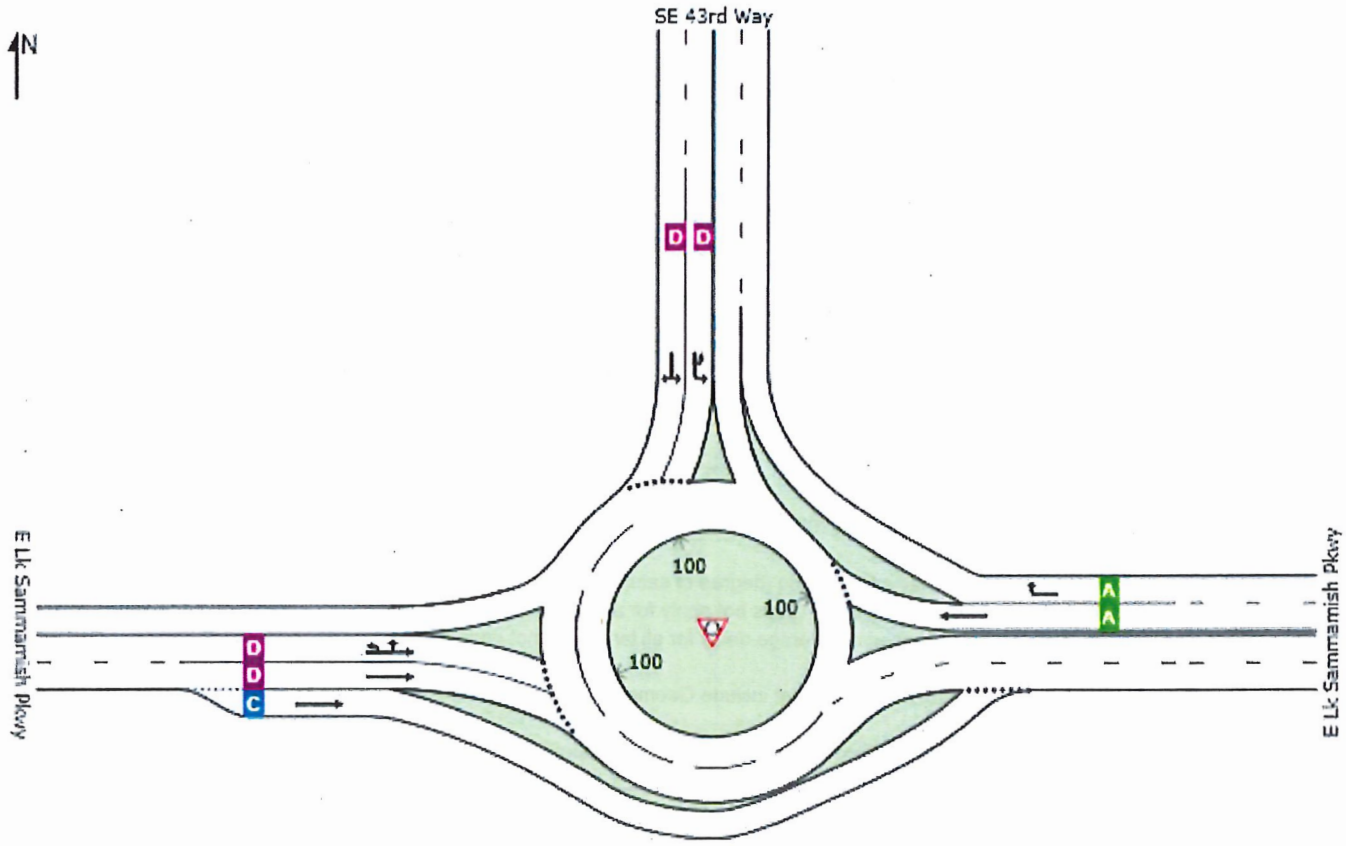
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way 2018 NO ACTION AM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	A	D	D	C



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Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way 2018 NO ACTION AM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	475	4.0	1025	0.463	100	8.8	LOS A	2.6	66.6	Full	1600	0.0	0.0
Lane 2	398	4.0	1610	0.247	100	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	873	4.0		0.463		4.8	LOS A	2.6	66.6				
North: SE 43rd Way													
Lane 1	533	1.0	681	0.784	100	25.6	LOS D	7.2	180.6	Full	1600	0.0	0.0
Lane 2[d]	533	1.0	681	0.784	100	25.6	LOS D	7.2	180.6	Full	1600	0.0	0.0
Approach	1067	1.0		0.784		25.6	LOS D	7.2	180.6				
West: E Lk Sammamish Pkwy													
Lane 1	415	1.0	518	0.801	100	33.3	LOS D	4.8	121.2	Full	1600	0.0	0.0
Lane 2[d]	437	1.0	545	0.801	100	32.0	LOS D	4.7	118.1	Full	1600	0.0	0.0
Lane 3	61	1.0	311	0.197	25[6]	15.4	LOS C	0.5	12.5	Short	200	0.0	NA
Approach	912	1.0		0.801		31.5	LOS D	4.8	121.2				
Intersection	2852	1.9		0.801		21.1	LOS C	7.2	180.6				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

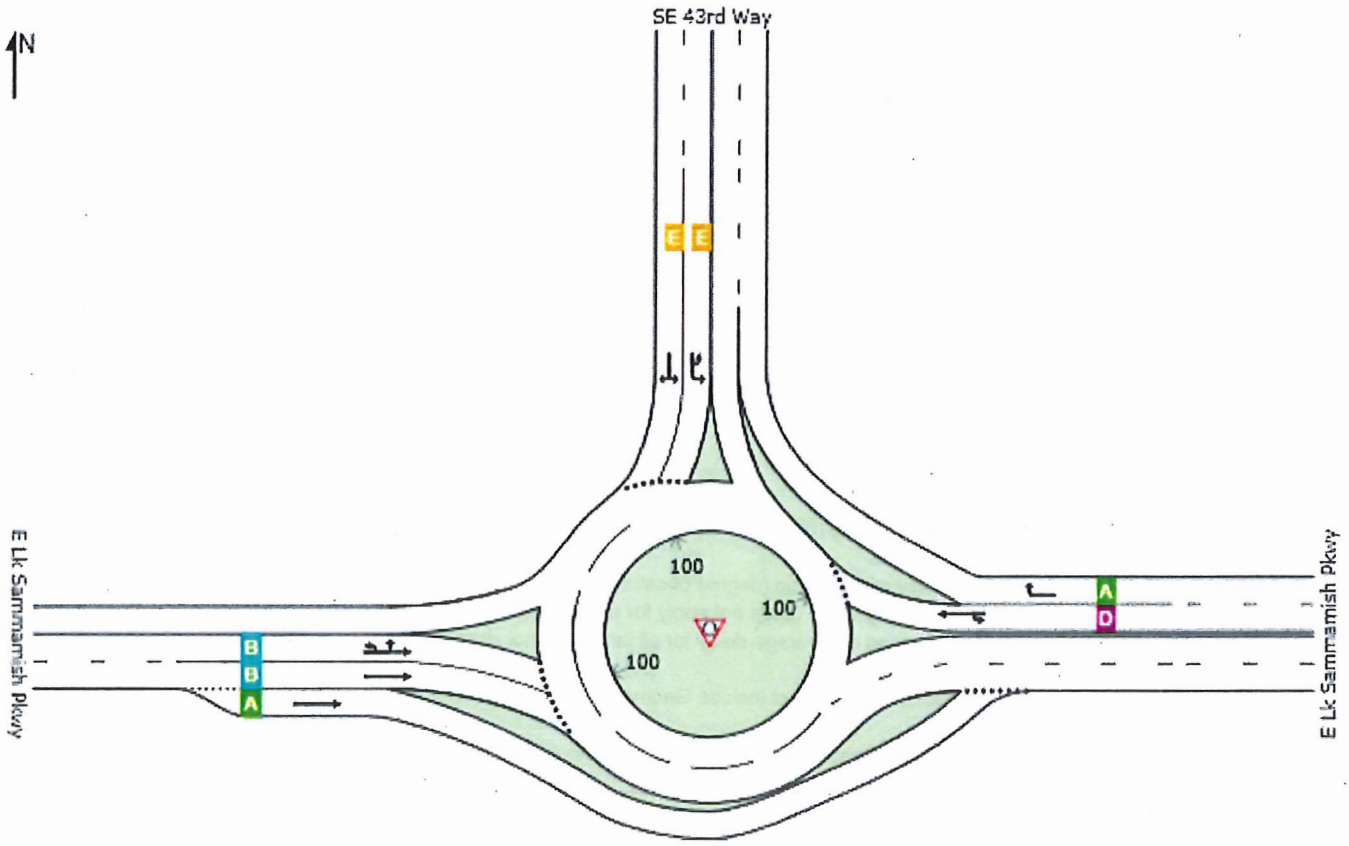
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way 2018 NO ACTION PM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	B	E	B	C



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HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way 2018 NO ACTION PM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	949	1.0	1077	0.882	100	26.3	LOS D	18.4	463.1	Full	1600	0.0	0.0
Lane 2	1135	1.0	1658	0.685	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	2085	1.0		0.882		12.1	LOS B	18.4	463.1				
North: SE 43rd Way													
Lane 1	330	1.0	425	0.775	100	36.0	LOS E	5.0	126.2	Full	1600	0.0	0.0
Lane 2[d]	330	1.0	425	0.775	100	36.0	LOS E	5.0	126.2	Full	1600	0.0	0.0
Approach	659	1.0		0.775		36.0	LOS E	5.0	126.2				
West: E Lk Sammamish Pkwy													
Lane 1	349	2.0	691	0.505	100	12.9	LOS B	2.1	53.9	Full	1600	0.0	0.0
Lane 2[d]	360	2.0	713	0.505	100	12.6	LOS B	2.0	51.6	Full	1600	0.0	0.0
Lane 3	55	2.0	442	0.124	25[6]	9.9	LOS A	0.3	7.9	Short	200	0.0	NA
Approach	765	2.0		0.505		12.6	LOS B	2.1	53.9				
Intersection	3509	1.2		0.882		16.7	LOS C	18.4	463.1				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

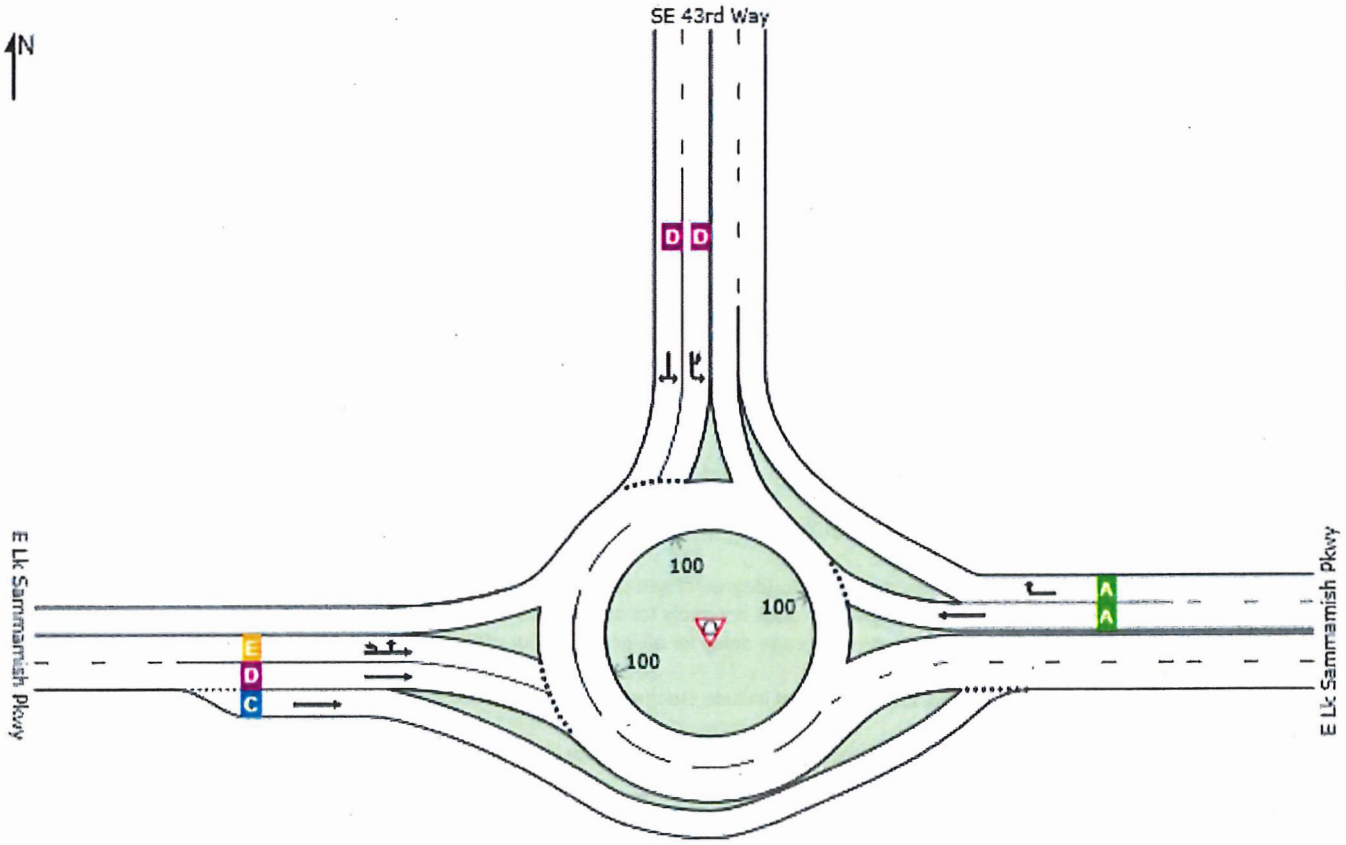
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way 2018 WITH PROJECT AM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	A	D	D	C



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Organisation: TENW | Processed: Tuesday, December 13, 2016 11:39:37 AM
Project: T:\Active Projects\Mallard Bay Issaquah - 5339\Planning - 5339\LOS\43rd & ELSP.sip6

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way 2018 WITH PROJECT AM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	475	4.0	1024	0.464	100	8.8	LOS A	2.6	66.6	Full	1600	0.0	0.0
Lane 2	404	4.0	1610	0.251	100	0.0	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	879	4.0		0.464		4.8	LOS A	2.6	66.6				
North: SE 43rd Way													
Lane 1	545	1.0	681	0.801	100	27.1	LOS D	7.7	193.6	Full	1600	0.0	0.0
Lane 2[d]	545	1.0	681	0.801	100	27.1	LOS D	7.7	193.6	Full	1600	0.0	0.0
Approach	1091	1.0		0.801		27.1	LOS D	7.7	193.6				
West: E Lk Sammamish Pkwy													
Lane 1	415	1.0	510	0.814	100	35.1	LOS E	5.0	125.8	Full	1600	0.0	0.0
Lane 2[d]	437	1.0	537	0.814	100	33.8	LOS D	4.9	122.7	Full	1600	0.0	0.0
Lane 3	61	1.0	307	0.200	25[6]	15.6	LOS C	0.5	12.8	Short	200	0.0	NA
Approach	914	1.0		0.814		33.2	LOS D	5.0	125.8				
Intersection	2883	1.9		0.814		22.2	LOS C	7.7	193.6				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

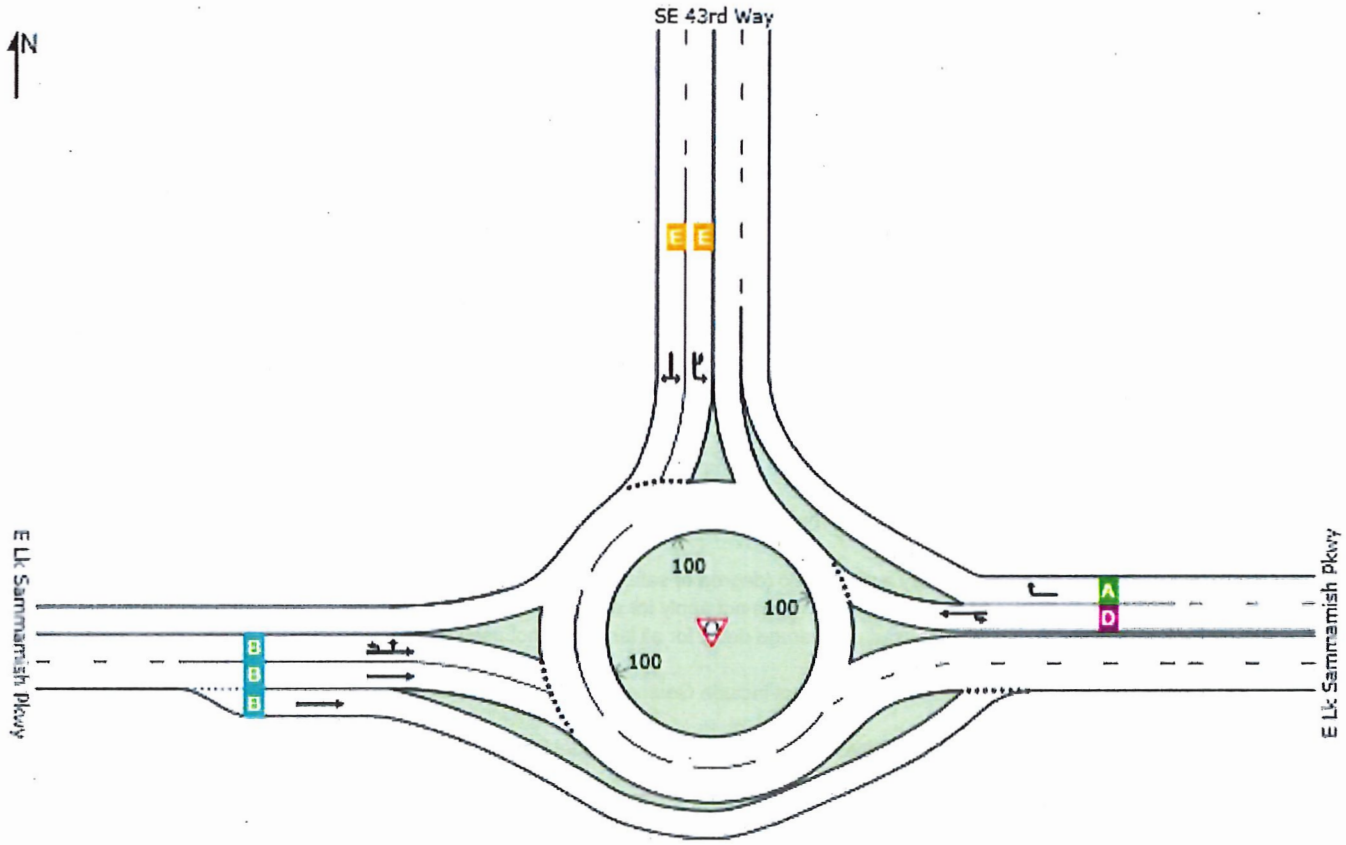
LEVEL OF SERVICE

Site: E Lake Samm Pkwy / SE 43rd Way 2018 WITH PROJECT PM PEAK

New Site
Roundabout

All Movement Classes

	East	North	West	Intersection
LOS	B	E	B	C



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

LANE SUMMARY

Site: E Lake Samm Pkwy / SE 43rd Way 2018 WITH PROJECT PM PEAK

New Site
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
East: E Lk Sammamish Pkwy													
Lane 1[d]	949	1.0	1071	0.887	100	26.9	LOS D	18.5	465.5	Full	1600	0.0	0.0
Lane 2	1157	1.0	1658	0.698	100	0.2	LOS A	0.0	0.0	Full	1600	0.0	0.0
Approach	2106	1.0		0.887		12.3	LOS B	18.5	465.5				
North: SE 43rd Way													
Lane 1	338	1.0	425	0.796	100	38.2	LOS E	5.4	135.1	Full	1600	0.0	0.0
Lane 2[d]	338	1.0	425	0.796	100	38.2	LOS E	5.4	135.1	Full	1600	0.0	0.0
Approach	676	1.0		0.796		38.2	LOS E	5.4	135.1				
West: E Lk Sammamish Pkwy													
Lane 1	351	2.0	683	0.513	100	13.2	LOS B	2.2	55.1	Full	1600	0.0	0.0
Lane 2[d]	362	2.0	706	0.513	100	12.9	LOS B	2.1	52.8	Full	1600	0.0	0.0
Lane 3	55	2.0	438	0.126	25[6]	10.0	LOS B	0.3	8.1	Short	200	0.0	NA
Approach	768	2.0		0.513		12.9	LOS B	2.2	55.1				
Intersection	3551	1.2		0.887		17.3	LOS C	18.5	465.5				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects
d Dominant lane on roundabout approach

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	495	8	0	880	2	23	0	3	0	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		508			756			209			349	
Travel Time (s)		8.7			12.9			5.7			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	2%	2%	2%	2%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	495	8	0	880	2	23	0	3	0	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	2	2	2	2	2	0	2	0
Mvmt Flow	0	538	9	0	957	2	25	0	3	0	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	959	0	0	547	0	0	1020	1501	273	1227	1505	479
Stage 1	-	-	-	-	-	-	542	542	-	958	958	-
Stage 2	-	-	-	-	-	-	478	959	-	269	547	-
Critical Hdwy	4.2	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.54	-
Follow-up Hdwy	2.25	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4.02	3.3
Pot Cap-1 Maneuver	695	-	-	1018	-	-	191	121	725	137	120	538
Stage 1	-	-	-	-	-	-	492	518	-	280	334	-
Stage 2	-	-	-	-	-	-	537	334	-	719	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	695	-	-	1018	-	-	179	121	725	136	120	538
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	237	-	136	120	-
Stage 1	-	-	-	-	-	-	492	518	-	280	334	-
Stage 2	-	-	-	-	-	-	502	334	-	716	516	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.9	12.2
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	330	695	-	-	1018	-	-	538
HCM Lane V/C Ratio	0.086	-	-	-	-	-	-	0.065
HCM Control Delay (s)	16.9	0	-	-	0	-	-	12.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	903	25	0	673	2	14	0	1	0	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Link Speed (mph)		40			40			25			25	
Link Distance (ft)		508			756			181			349	
Travel Time (s)		8.7			12.9			4.9			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	2%	2%	3%	3%	2%	2%	2%	0%	2%	0%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	903	25	0	673	2	14	0	1	0	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	2	2	3	3	2	2	2	0	2	0
Mvmt Flow	0	982	27	0	732	2	15	0	1	0	0	15

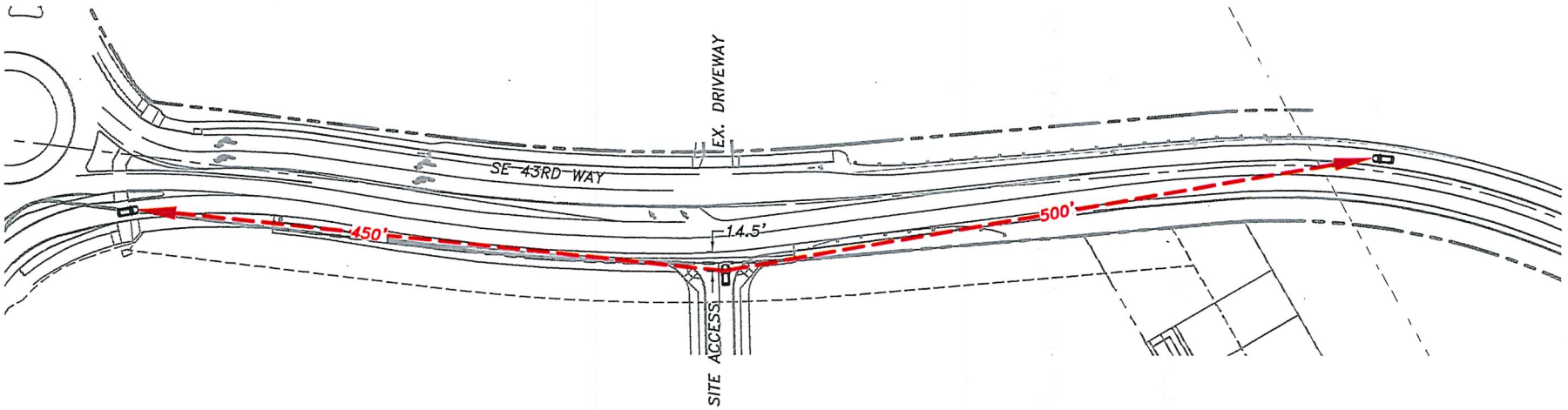
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	1009	0	0	1361	1729	504	1224	1742	367
Stage 1	-	-	-	-	-	-	995	995	-	733	733	-
Stage 2	-	-	-	-	-	-	366	734	-	491	1009	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.54	6.54	6.94	7.5	6.54	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.5	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.5	5.54	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.52	4.02	3.32	3.5	4.02	3.3
Pot Cap-1 Maneuver	874	-	-	683	-	-	107	87	513	137	86	636
Stage 1	-	-	-	-	-	-	262	321	-	383	424	-
Stage 2	-	-	-	-	-	-	626	424	-	533	316	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	874	-	-	683	-	-	104	87	513	137	86	636
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	205	-	137	86	-
Stage 1	-	-	-	-	-	-	262	321	-	383	424	-
Stage 2	-	-	-	-	-	-	611	424	-	532	316	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	23.2	10.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	214	874	-	-	683	-	-	636
HCM Lane V/C Ratio	0.076	-	-	-	-	-	-	0.024
HCM Control Delay (s)	23.2	0	-	-	0	-	-	10.8
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

ATTACHMENT D

Entering Sight Distance Exhibit



ENTERING SIGHT DISTANCE

	LEFT TURN	RIGHT TURN
REQUIRED	500 FT	430 FT
AVAILABLE	500+ FT.	450+ FT

ISSAQUAH ADOPTED STREET STANDARDS
STANDARD DETAIL T-01

POSTED SPEED 40 MPH
DESIGN SPEED 45 MPH

85TH-PERCENTILE SPEED: 43 MPH EB
42 MPH WB

N

0 80
HORIZONTAL SCALE
IN FEET

DATE: 12/14/2016	TENW Transportation Engineering NorthWest Transportation Planning | Design | Traffic Impact & Operations 11400 SE 8th Street, Suite 200, Bellevue, WA 98004 Office (425) 889-6747 Project Contact: Jeff Schramm, P.E. Phone: 425-250-0581	MALLARD BAY SE 43RD WAY, ISSAQUAH	SHEET 1
		ENTERING SIGHT DISTANCE	OF 1

ATTACHMENT E

Speed Study Results on SE 43rd Way

Prepared by National Data & Surveying Services

SPEED

SE 43rd Way NE/O E Lake Sammamish Pkwy

Day: Wednesday
Date: 12/7/2016

City: Issaquah
Project #: WA16_2066_001n

North Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	2	0	9	13	5	1	0	0	0	0	0	30
01:00	0	0	0	0	3	4	6	2	0	0	0	0	0	15
02:00	0	0	1	1	3	2	5	0	0	0	0	0	0	12
03:00	0	0	2	0	1	6	3	0	0	0	0	0	0	12
04:00	0	0	0	2	15	15	1	0	0	0	0	0	0	33
05:00	0	0	1	13	27	49	26	1	1	1	0	0	0	119
06:00	0	0	0	9	84	142	67	5	0	0	0	0	0	307
07:00	0	1	1	14	98	228	100	18	1	0	0	0	0	461
08:00	0	1	1	17	90	218	106	11	0	0	0	0	0	444
09:00	0	1	5	16	97	228	108	11	1	1	0	0	0	468
10:00	0	0	0	15	102	184	104	15	1	0	0	0	0	421
11:00	1	0	1	16	80	221	125	15	2	1	0	0	0	462
12:00 PM	0	1	3	9	98	271	166	26	5	1	0	0	0	580
13:00	0	0	0	8	92	233	169	20	3	0	0	0	0	525
14:00	0	1	2	11	75	325	193	34	5	1	0	0	0	647
15:00	0	0	6	3	92	395	206	45	7	2	0	0	0	756
16:00	0	2	1	7	115	439	222	33	5	1	0	0	0	825
17:00	0	0	3	9	136	434	225	38	7	2	0	0	0	854
18:00	0	0	0	10	139	470	256	57	8	2	0	0	0	942
19:00	0	0	0	10	106	349	159	18	3	0	1	0	0	646
20:00	0	0	0	4	65	163	75	17	3	2	0	0	0	329
21:00	0	0	1	3	37	134	82	13	3	1	1	0	0	275
22:00	0	0	3	10	35	48	22	6	1	0	0	0	0	125
23:00	0	0	0	1	14	24	15	7	0	0	0	0	0	61
Totals	1	7	33	188	1613	4595	2446	393	56	15	2			9349
% of Totals	0%	0%	0%	2%	17%	49%	26%	4%	1%	0%	0%			100%

AM Volumes	1	3	14	103	609	1310	656	79	6	3	0	0	0	2784
% AM	0%	0%	0%	1%	7%	14%	7%	1%	0%	0%				30%
AM Peak Hour	11:00	07:00	09:00	08:00	10:00	07:00	11:00	07:00	11:00	05:00				09:00
Volume	1	1	5	17	102	228	125	18	2	1				468
PM Volumes	0	4	19	85	1004	3285	1790	314	50	12	2	0	0	6565
% PM		0%	0%	1%	11%	35%	19%	3%	1%	0%	0%			70%
PM Peak Hour		16:00	15:00	14:00	18:00	18:00	18:00	18:00	18:00	15:00	19:00			18:00
Volume		2	6	11	139	470	256	57	8	2	1			942

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	905	⟷	10%	1105	⟷	12%	1679	⟷	18%	5660	⟷	61%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SE 43rd Way	North Bound	34	38	38	43	45	9349
SE 43rd Way	South Bound	31	36	36	41	44	9277

Prepared by National Data & Surveying Services

SPEED

SE 43rd Way NE/O E Lake Sammamish Pkwy

Day: Wednesday
Date: 12/7/2016

City: Issaquah
Project #: WA16_2066_001s

South Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	0	0	6	4	7	1	0	0	0	0	0	18
01:00	0	0	1	1	4	4	2	0	0	0	0	0	0	12
02:00	0	0	1	1	0	5	2	2	0	0	0	0	0	11
03:00	0	0	0	1	6	9	2	2	0	0	0	0	0	20
04:00	0	0	0	0	8	27	15	1	0	0	0	0	0	51
05:00	0	2	3	5	37	111	54	8	0	0	0	0	0	220
06:00	0	1	8	24	143	249	76	2	0	0	0	0	0	503
07:00	0	5	23	50	295	378	76	3	0	1	0	0	0	831
08:00	0	2	16	47	237	396	105	9	0	0	0	0	0	812
09:00	0	7	18	59	278	343	102	9	0	0	0	0	0	816
10:00	0	0	11	19	166	343	134	10	2	0	0	0	0	685
11:00	0	2	10	41	120	307	133	14	0	0	1	0	0	628
12:00 PM	1	1	18	22	98	287	125	10	2	0	0	0	0	564
13:00	0	3	8	18	142	266	110	9	0	0	0	0	0	556
14:00	0	2	4	18	132	274	134	16	1	0	1	0	0	582
15:00	2	6	7	39	204	318	96	6	2	0	0	0	0	680
16:00	6	13	44	58	171	253	50	5	0	0	0	0	0	600
17:00	0	0	7	61	228	176	27	6	0	0	0	0	0	505
18:00	0	1	14	34	150	161	39	4	0	1	0	0	0	404
19:00	0	1	3	18	91	124	31	4	0	1	0	0	0	273
20:00	0	2	6	5	71	111	32	5	0	0	0	0	0	232
21:00	0	2	6	4	50	63	17	3	0	0	0	0	0	145
22:00	0	1	0	5	20	39	27	4	0	0	0	0	0	96
23:00	0	0	1	1	4	18	6	3	0	0	0	0	0	33
Totals	9	51	209	531	2661	4266	1402	136	7	3	2			9277
% of Totals	0%	1%	2%	6%	29%	46%	15%	1%	0%	0%	0%			100%

AM Volumes	0	19	91	248	1300	2176	708	61	2	1	1	0	0	4607
% AM		0%	1%	3%	14%	23%	8%	1%	0%	0%	0%			50%
AM Peak Hour		09:00	07:00	09:00	07:00	08:00	10:00	11:00	10:00	07:00	11:00			07:00
Volume		7	23	59	295	396	134	14	2	1	1			831
PM Volumes	9	32	118	283	1361	2090	694	75	5	2	1	0	0	4670
% PM	0%	0%	1%	3%	15%	23%	7%	1%	0%	0%	0%			50%
PM Peak Hour	16:00	16:00	16:00	17:00	17:00	15:00	14:00	14:00	12:00	18:00	14:00			15:00
Volume	6	13	44	61	228	318	134	16	2	1	1			680

Directional Peak Periods	AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Speeds	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%	Volume	⟷	%
	1643	⟷	18%	1120	⟷	12%	1105	⟷	12%	5409	⟷	58%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SE 43rd Way	North Bound	34	38	38	43	45	9349
SE 43rd Way	South Bound	31	36	36	41	44	9277

Prepared by National Data & Surveying Services

SPEED

SE 43rd Way NE/O E Lake Sammamish Pkwy

Day: Thursday
Date: 12/8/2016

City: Issaquah
Project #: WA16_2066_001n

North Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	0	1	7	10	6	1	0	0	0	0	0	25
01:00	1	0	2	1	3	12	5	1	0	0	0	0	0	25
02:00	0	1	0	1	2	4	1	0	0	0	0	0	0	9
03:00	0	0	0	0	6	9	1	1	0	0	0	0	0	17
04:00	0	0	0	2	1	14	7	0	0	0	0	0	0	24
05:00	0	0	0	4	28	55	27	2	2	1	0	0	0	119
06:00	0	0	1	7	70	181	74	12	1	0	0	0	0	346
07:00	0	0	3	10	74	209	118	25	5	0	1	0	0	445
08:00	0	1	3	9	80	217	75	18	2	0	0	0	0	405
09:00	0	3	2	15	92	178	91	6	3	0	1	0	0	391
10:00	0	0	3	12	64	212	101	14	1	0	0	0	0	407
11:00	0	0	2	8	81	245	123	21	5	2	0	0	0	487
12:00 PM	0	0	3	13	79	265	137	23	6	2	1	0	0	529
13:00	0	0	1	6	81	280	161	23	4	0	1	0	0	557
14:00	0	1	0	5	110	296	208	31	7	0	1	0	0	659
15:00	0	0	0	5	118	410	239	39	4	2	0	0	0	817
16:00	0	0	1	3	116	441	239	46	5	3	0	0	0	854
17:00	0	0	1	12	155	487	260	44	9	3	0	0	0	971
18:00	0	0	1	2	82	363	208	27	12	0	1	0	0	696
19:00	0	0	1	6	67	195	77	19	4	0	2	0	0	371
20:00	0	0	7	12	73	115	59	4	1	0	0	0	0	271
21:00	0	3	3	16	64	79	28	8	1	0	0	0	0	202
22:00	1	0	1	4	32	52	19	1	1	0	0	0	0	111
23:00	0	0	0	3	14	16	8	1	0	0	0	0	0	42
Totals	2	9	35	157	1499	4345	2272	367	73	13	8			8780
% of Totals	0%	0%	0%	2%	17%	49%	26%	4%	1%	0%	0%			100%

AM Volumes	1	5	16	70	508	1346	629	101	19	3	2	0	0	2700
% AM	0%	0%	0%	1%	6%	15%	7%	1%	0%	0%	0%			31%
AM Peak Hour	01:00	09:00	07:00	09:00	09:00	11:00	11:00	07:00	07:00	11:00	07:00			11:00
Volume	1	3	3	15	92	245	123	25	5	2	1			487
PM Volumes	1	4	19	87	991	2999	1643	266	54	10	6	0	0	6080
% PM	0%	0%	0%	1%	11%	34%	19%	3%	1%	0%	0%			69%
PM Peak Hour	22:00	21:00	20:00	21:00	17:00	17:00	17:00	16:00	18:00	16:00	19:00			17:00
Volume	1	3	7	16	155	487	260	46	12	3	2			971

Directional Peak Periods All Speeds	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	850	10%	1086	12%	1825	21%	5019	57%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SE 43rd Way	North Bound	34	38	38	43	45	8780
SE 43rd Way	South Bound	32	37	37	42	44	8723

Prepared by National Data & Surveying Services

SPEED

SE 43rd Way NE/O E Lake Sammamish Pkwy

Day: Thursday
Date: 12/8/2016

City: Issaquah
Project #: WA16_2066_001s

South Bound

Time	< 15	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 +	Total
00:00 AM	0	0	1	2	5	6	6	2	0	0	0	0	0	22
01:00	0	0	0	0	3	1	1	0	0	1	0	0	0	6
02:00	0	0	0	1	5	7	4	1	0	0	0	0	0	18
03:00	0	0	2	0	2	7	4	0	0	0	1	0	0	16
04:00	0	0	2	2	8	24	18	3	1	0	0	0	0	58
05:00	0	0	6	5	18	92	58	10	1	1	0	0	0	191
06:00	5	0	15	12	117	253	110	9	1	0	0	0	0	522
07:00	0	4	15	36	195	444	148	14	1	0	0	0	0	857
08:00	0	2	16	37	196	419	172	11	3	0	0	0	0	856
09:00	0	2	8	33	198	351	151	17	4	0	0	0	0	764
10:00	0	2	10	9	122	346	150	14	2	2	0	0	0	657
11:00	0	2	8	10	108	282	134	17	1	0	0	0	0	562
12:00 PM	2	0	18	11	105	290	153	24	1	0	0	0	0	604
13:00	0	1	6	11	106	267	119	8	1	0	0	0	0	519
14:00	1	4	9	17	108	301	153	14	0	1	1	0	0	609
15:00	1	1	10	34	149	273	129	12	2	0	0	0	0	611
16:00	1	2	13	29	161	232	60	7	2	0	0	0	0	507
17:00	0	4	11	33	173	189	43	4	3	0	0	0	0	460
18:00	0	1	8	10	89	134	47	7	2	0	0	0	0	298
19:00	0	2	3	18	58	114	26	3	0	0	0	0	0	224
20:00	0	1	2	6	60	56	18	3	0	0	0	0	0	146
21:00	0	0	2	14	41	39	17	1	0	0	0	0	0	114
22:00	0	0	3	7	21	32	8	0	0	0	0	0	0	71
23:00	0	0	1	6	9	10	4	1	0	0	0	0	0	31
Totals	10	28	169	343	2057	4169	1733	182	25	5	2			8723
% of Totals	0%	0%	2%	4%	24%	48%	20%	2%	0%	0%	0%			100%

AM Volumes	5	12	83	147	977	2232	956	98	14	4	1	0	0	4529
% AM	0%	0%	1%	2%	11%	26%	11%	1%	0%	0%	0%			52%
AM Peak Hour	06:00	07:00	08:00	08:00	09:00	07:00	08:00	09:00	09:00	10:00	03:00			07:00
Volume	5	4	16	37	198	444	172	17	4	2	1			857
PM Volumes	5	16	86	196	1080	1937	777	84	11	1	1	0	0	4194
% PM	0%	0%	1%	2%	12%	22%	9%	1%	0%	0%	0%			48%
PM Peak Hour	12:00	14:00	12:00	15:00	17:00	14:00	12:00	12:00	17:00	14:00	14:00			15:00
Volume	2	4	18	34	173	301	153	24	3	1	1			611

Directional Peak Periods All Speeds	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	1713 ⟷	20%	1123 ⟷	13%	967 ⟷	11%	4920 ⟷	56%

Street Name	Direction	Percentiles					
		15th	50th	Average	85th	95th	ADT
SE 43rd Way	North Bound	34	38	38	43	45	8780
SE 43rd Way	South Bound	32	37	37	42	44	8723

ATTACHMENT F

Collision History as provided by WSDOT

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* THE FOLLOWING INTERSECTION & ROAD SEGMENT IN THE CITIES OF ISSAQUAH & SAMMAMISH

01/01/2013 - 12/31/2015

Under 23 U.S. Code § 406 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	DATE	MOST SEVERE INJURY TYPE	# INJ	# FAT	# MAIM	# PED	# BIKE	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	FIRST COLLISION TYPE / OBJECT STRUCK
City Street	E LAKE SAMMAMISH PKWY SE	7700	SE 43RD WAY					11/15/2014	No Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Circulating Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					02/16/2013	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Entering Roundabout	Entering at angle
City Street	E LAKE SAMMAMISH PKWY SE	2200	SE 43RD WAY					08/15/2013	No Injury	0	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Related	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					07/29/2013	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Entering Roundabout	Entering at angle
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					03/06/2014	No Injury	0	0	1	0	0	Passenger Car		At Intersection and Related	Wood Sign Post
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					04/25/2014	Possible Injury	1	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Entering Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE	5400	SE 43RD WAY					06/24/2013	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Not Stated	Circulating Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE	800	SE 43RD WAY					11/15/2015	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Entering Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					01/22/2014	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Exiting Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE	4300	SE 43RD WAY					08/01/2015	No Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Exiting Roundabout	From same direction - both going straight - both moving - rear-end
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					04/20/2015	No Injury	0	0	2	0	0	Passenger Car	Truck - Double Trailer Combinations	Entering Roundabout	Entering at angle
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					04/19/2015	Possible Injury	1	0	1	0	1	Pickup,Panel Truck or Vanette under 10,000 lb		Exiting Roundabout	Vehicle - Pedalcyclist
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					11/27/2013	No Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Exiting Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					08/29/2013	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Entering Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					10/03/2014	No Injury	0	0	2	0	0	Truck Tractor & Semi-Trailer	Pickup,Panel Truck or Vanette under 10,000 lb	Exiting Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					05/07/2015	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Circulating Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					12/12/2013	No Injury	0	0	1	0	0	Passenger Car		Circulating Roundabout	Street Light Pole or Base
City Street	E LAKE SAMMAMISH PKWY SE	7200	SE 43RD WAY					03/27/2014	Possible Injury	2	0	4	0	0	Truck & Trailer	Passenger Car	Entering Roundabout	Entering at angle
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					07/02/2014	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Exiting Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					11/03/2014	No Injury	0	0	2	0	0	Passenger Car	Passenger Car	Entering Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					10/25/2015	No Injury	0	0	1	0	0	Passenger Car		Circulating Roundabout	Linear Curb
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					06/27/2015	Possible Injury	1	0	1	0	0	Passenger Car		Circulating Roundabout	Street Light Pole or Base
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					11/24/2015	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Entering Roundabout	Same direction – both turning right – both moving – sideswipe
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					08/16/2013	No Injury	0	0	1	0	0	Passenger Car		Circulating Roundabout	Street Light Pole or Base
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WAY					09/17/2015	No Injury	0	0	2	0	0	Passenger Car	Truck & Trailer	Entering Roundabout	From same direction - one right turn - one straight
City Street	E LAKE SAMMAMISH PKWY SE		SE 43RD WY					12/17/2014	No Injury	0	0	2	0	0	Passenger Car	Passenger Car	Entering Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE			125	F	S	SE 43RD WAY	02/27/2013	Possible Injury	1	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Exiting Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	E LAKE SAMMAMISH PKWY SE	1000		97	F	SE	SE 43RD WAY	01/18/2014	No Injury	0	0	1	0	0	Passenger Car		Exiting Roundabout	Street Light Pole or Base
City Street	E LAKE SAMMAMISH PKWY SE	6800		79.1	F	SE	SE 43RD WAY	08/08/2013	Possible Injury	1	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Truck (Flatbad,Van,etc)	At Roundabout but not Related	From same direction - both going straight - one stopped - rear-end
City Street	SE 43RD WAY	21400	213TH PL SE					05/27/2015	No Injury	0	0	2	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Not Related	From same direction - both going straight - both moving - sideswipe
City Street	SE 43RD WAY	21400	213TH PL SE					07/10/2015	No Injury	0	0	2	0	0	Passenger Car	Passenger Car	At Intersection and Not Related	From same direction - all others
City Street	SE 43RD WAY		E LAKE SAMMAMISH PKWY SE					01/17/2014	Evident Injury	1	0	1	0	0	Truck (Flatbad,Van,etc)		Entering Roundabout	Vehicle overturned
City Street	SE 43RD WAY		E LAKE SAMMAMISH PKWY SE					10/28/2015	No Injury	0	0	2	0	0	Truck Tractor & Semi-Trailer	Pickup,Panel Truck or Vanette under 10,000 lb	Circulating Roundabout	From same direction - both going straight - both moving - sideswipe
City Street	SE 43RD WAY		E LAKE SAMMAMISH PKWY SE					04/27/2015	No Injury	0	0	2	0	0	Passenger Car	Truck (Flatbad,Van,etc)	Entering Roundabout	Entering at angle
City Street	SE 43RD WAY	7500		22	F	NE	E LAKE SAMMAMISH PKWY SE	09/18/2013	No Injury	0	0	3	0	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Roundabout Related but not at Roundabout	From same direction - both going straight - one stopped - rear-end
City Street	SE 43RD WAY	5500		100	F	NE	E LAKE SAMMAMISH PKWY SE	09/29/2014	No Injury	0	0	2	0	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Roundabout Related but not at Roundabout	From same direction - both going straight - one stopped - rear-end